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ACCOUNTS AND PAPERS:

THIRTY-TWO VOLUMES.

—*(14.)*—

EAST INDIA—*continued.*

ECCLESIASTICAL; EDUCATION; SCIENCE AND ART.

Session

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ACCOUNTS AND PAPERS:

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RETURN to an Address of the Honourable The House of Commons, dated 3 August 1869;—*for*,

"COPY or EXTRACTS of any CORRESPONDENCE on the subject of the EXTENSION of RAILWAYS in *India*, and their future Construction and Management, previous to that presented to this House on the 23rd ultimo."

India Office,
6 August 1869.

W. T. THORNTON,
Secretary, Public Works Department.

(*Sir Stafford Northcote.*)

Ordered, by The House of Commons, *to be Printed*,
9 *August* 1869.

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COPY or EXTRACTS of CORRESPONDENCE on the subject of the EXTENSION of RAILWAYS in *India* and their future Construction and Management.

(Railway, No. 30.)

To His Excellency the Right Honourable the Governor General of India in Council.

Sir, India Office, London, 25 June 1866.

Para. 1. YOUR Excellency's Despatches of the dates noted in the margin, relate to various schemes for the construction of railways with assistance from Government in some other form than that of a guarantee of interest. Replies to these letters have hitherto been deferred, pending the result of a correspondence with the Indian Branch Railway Company, who sought some modification of the terms offered to and formerly accepted by them, and which have been regarded as the maximum terms to be granted to any company proposing to construct railways without a guarantee of interest.

Political	Despatch,	No. 71,	dated	19 Sept.	1864.
„	„	„ 91,	„	9 Dec.	„
Railway	„	„ 81,	„	13 „	„
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Political	„	„ 36,	„	7 April	„
Railway	„	„ 38,	„	12 May	„
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„	„	„ 56,	„	26 „	„
„	„	„ 63,	„	17 July	„
„	„	„ 68,	„	28 „	„
„	„	„ 73,	„	14 Aug.	„
„	„	„ 79,	„	11 Sept.	„
„	„	„ 91,	„	2 Oct.	„
„	„	„ 110,	„	4 Dec.	„
„	„	„ 111,	„	5 „	„
Political	„	„ 9,	„	22 Jan.	„

2. The money market in this country has lately been, and still is, in a state which precludes the hope of capital being raised for the purposes of unguaranteed Indian railways, but it appears to me that it is desirable to consider the objections raised by the promoters of some of the proposed railways to many of the conditions under which Government assistance to unguaranteed works has been offered. Some of these objections will be found stated in the correspondence with the Indian Branch Railway Company above referred to, which is forwarded herewith. They are, however, more fully and clearly set forth in a letter from the Directors of the Great Indian Peninsula Extension Railway Company, of the 14th November 1864, a copy of which will be found amongst the correspondence with that Company, also herewith forwarded.

3. I am aware that in your Secretary's letter to the Indian Branch Railway Company, of the 9th March 1865, considerable modifications were made in the conditions of the draft agreement with that Company, and your meaning in regard to others was fully explained, with a view to remove objections to them; but these and some further modifications sanctioned by my predecessor in a letter to the Company, dated 22nd June 1865, have not had the desired effect. I request, therefore, that your Excellency will carefully consider the subject, with reference not to the amount of subvention, but to the clauses in the draft agreement on other subjects, such as the powers of Government, penalty of forfeiture, &c., &c., and will acquaint me with the result of your deliberations.

I have, &c.
(signed) *De Grey and Ripon.*

(Enclosures.)

Part I.

Correspondence between the Secretary of State for India and the Indian Branch Railway Company.

No. 1.

(No. 117.)

Indian Branch Railway Company, Limited,
2, Moorgate Street, London, E.C.,
15 May 1865.

Sir,

I have the honour, by desire of the Directors of this Company, to forward, for the information of the Secretary of State for India in Council, a copy of a Despatch, No. 208 R, dated 9th March 1865, received from the Government of India, in reply to a communication from them dated 10th November 1864,* respecting the terms of the agreement for the concession of their lines of railway in Oudh and Rohilcund.

* No. 216.

2. The modifications which the Directors suggested should be made in certain of the conditions proposed by the Government of India were set forth in my letter to you of the 3rd October 1864,† and need not therefore be recapitulated.

† No. 197.

3. With the observations of the Government of India, the Directors are now willing to accept the conditions offered, excepting those contained in Clauses LXII. to LXV., LXX. and LXXI., and respecting which they would again venture to submit a few remarks.

First, as regards Clauses LXII. to LXV., "Caution Money," the Directors would suggest that such should be limited to 100 *l.* per mile of land made over to the Company, so that the immediate payment may be limited to the sum of 4,500 *l.* for the Lucknow and Cawnpore Line, the only one at present under construction. This arrangement, as it appears to the Directors, being really in accordance with the principle laid down by the Government of India, will, they hope, be authorised by the Secretary of State, and that they will not be required to make any further deposit until more land is made over to them.

Second, as regards Clauses LXX. and LXXI., "Rights of Property," the Directors would beg to point out, that though delays in opening the lines may arise from many obvious causes beyond the control of the Company, inability to raise sufficient capital would probably be the only cause which would prevent the lines being proceeded with.

The present firm intention and anxious desire of the Company is to carry out the whole system of lines for which they are negotiating; but unforeseen circumstances may arise which might possibly preclude the Company from fulfilling their engagement, and consequently, before taking the final step of executing an agreement with the severe penalties contained in Clauses LXX. and LXXI., the Directors would observe that they are willing to accept these clauses as they now stand, the words "or any portion of them" being entered in the second line, after the word "railways" in Clause LXX., on the expressed condition that positive inability to raise sufficient capital to enable the Company to fulfil their engagements with the Government, and for which good and sufficient reason is to be given should the occasion arise, shall be admitted into the category of causes beyond their own control.

4. The Government of India having stated that if the altered conditions are not accepted by the Company "the negotiations must be considered at an end," the Directors have no alternative but to address themselves to the Secretary of State, and they confidently trust that their representation will be favourably considered.

5. Many reasons might be advanced in support of the views entertained by the Directors in respect to the "deposit of caution money" and "rights of property," but they are unwilling to lengthen this letter by giving expression to them, and inconveniently occupying the time of the Secretary of State, and they would therefore suggest, should their written requests not be favourably received, that a deputation of members of the India Council, having large experience of English railways, may be appointed to receive a deputation of their Board, when they feel confident that the matters respecting which they are at variance with the Government of India would be satisfactorily settled.

I have, &c.
(signed) *C. C. Johnston*,
Managing Director, Indian Branch
Railway Company, Limited.

The Under Secretary of State for India.

Enclosure to No. 1.

(No. 208 R.)

From Colonel *R. Strachey*, R.E., Secretary to the Government of India, to Major-General *C. C. Johnston*, Managing Director, Indian Branch Railway Company, Limited, 2, Moorgate Street, London, E.C.

Public Works Department,
Fort William, 9 March 1865.

Sir,

Your letter, No. 216, dated the 10th November 1864, with annexed correspondence with the Secretary of State, suggesting modifications in the Draft Special Conditions to be attached to the contract for certain lines of railway in the North-Western Provinces and Oudh, having been laid before the Governor General in Council, I am directed to communicate the following observations, showing to what extent the Government of India accepts the proposed modifications in the several clauses. Railway.

1. Clause IV. More precision is asked for by the Company as to the extent of the land that will be granted. This is considered by the Government of India to be needless. The Government pledges itself to give such land as it considers necessary, as approved by Commissioners under Act XXII. of 1863.

2. Clause IX. The intention of this clause was merely to reserve to Government the right of calling for drawings, when wanted.

3. Clause XIV. The Government consents to modify this clause, so as to limit the road crossings to be maintained at the expense of the Company to public roads. This had been the intention at first, but, from an oversight, a correction was made in the wording which extended the liability of the Company. To meet the change, the clause, as drafted, will be modified as follows:—

"If at any time after the Company is placed in possession of the land for the railway, any ordinary public road (not being a railroad or tramroad) is constructed crossing the railroad, the necessary gates, fences, and masonry works connected with such crossing shall be maintained by and at the cost of the Company. If after the time aforesaid any railroad, tramroad, or private ordinary road shall be constructed, crossing the railway, all gates, fences, and works connected with such crossing shall be maintained by the Company, but at the cost of the promoters or owners of such road."

4. Clause XXII. Sufficient land for a double line, in the first instance, is asked for. This the Government of India considers should be left to the discretion of Government under Clause IV.

If land is excessively costly, and the company is not prepared to execute a double line at once, it is obviously neither necessary nor desirable to provide the additional land at first. The Government will agree to give the land for a double line at once, if the company will engage to make a double line. If they only engage to make a single line, it is not reasonable to ask for a pledge to give land for a double line, and the matter must be left to the discretion of the Government.

A slight modification of the wording has been thought desirable, to guard against any ambiguity as to the meaning of the word "vehicles," as follows:—

"The railway shall be for a single line, the gauge to be five feet six inches. The works and rails to be suited for a traffic of engines, carriages, waggons, and other vehicles weighing respectively when loaded not more than 3½ tons on each wheel, and travelling at a speed of not more than 15 miles per hour."

5. Clause XXVI. The Government of India assents to the date being changed to 1869.

6. Clause XXVII. - - - ditto - - - ditto to 1867.

7. Clause XXVIII. - - ditto - - - ditto to 1873.

8. Clause XXXVII. With the view of meeting the views of the Directors, the Governor General in Council agrees to the addition of the following provision to the clause as drafted:—

"Provided that at any time any other tariff of charges and any other rules for classification and general subsidiary rules, which shall first have been approved by the Government in that behalf, shall and may be substituted."

9. Clause XLII. The insertion after the words "shall be entitled" (line 3) of the words "subject in respect of speed and of the weight of engines, waggons, carriages, and other vehicles to the limits specified in Clause XXII." is agreed to.

10. Clause XLIII. Omit "as Nos. 1, 3, 4, 5, 6, and 7" (lines 4, 5).

11. Clauses XLIV., XLVI., XLVIII. may be omitted.

12. Clause XLV. For "two last foregoing clauses" (line 3), read "last foregoing clause."

Omit "in progress or" (line 5).

13. Clause XLVII. The word "First" (line 8) may be omitted.

14. Clause XLIX. For "Clauses XLV. and XLVI." (lines 1, 2), read "Clause XLV."

15. Clause L. Omit "XLVIII." It is intended to be understood that it is optional to the company to undertake any bridges across the Ganges.

16. Clause LI. should be omitted, the Benares-Jounpoor branch having been included in the subsidy.

17. The Government of India assents to the addition of the original stipulations as to the refund to the Company of import duty paid on permanent way materials, and the following clause may be inserted after Clause LIII.:—

Clause LIII. A. On the completion of the works on any portion of the line being certified under Clause XXX., the Government shall pay to the Company a sum equivalent to the import duty that shall have been paid on the quantity of permanent way material (that is to say, rails, chairs, and fixings), actually used and in place on such part of the line on its public opening, and such sum shall be calculated at the rates of duty charged for such material when imported, as ascertained from the Custom House receipts, and on the said actual quantity in place, as certified by a Government officer, to be deputed to ascertain the same.

18. Clause LVI. It is intended to be conveyed that, if the Government take up all the vehicles at any time, the whole of the accommodation will be paid for at the rates named.

19. The Governor General in Council is unable to depart from the original intention of Clause LXII. to the extent of accepting, as security, in lieu of caution money, other existing works of the Company, or the new works as they go on. His Excellency in Council is, however, prepared to modify the proposed conditions, as shown in the following amended Clause LXII. which may be substituted for that in the original draft :—

Clause LXII. The company shall deposit with the Government, as caution money, under Section XVII. of the General Act, the sum of 12,500 *l.*, on or before the execution of the present agreement, the same being regarded as a payment at the rate of 50 *l.* per mile on 250 miles of the lines of railway enumerated in Clause XXVI. And six months after the execution of this agreement, a further payment shall be made by the Company to the Government at the rate of 50 *l.* for every mile of railway, the land for which shall have been made over to the Company up to that time. Thereafter, as and when the Company shall be placed in possession of additional land, a deposit shall be made by the Company with the Government at the rate of 50 *l.* for every mile of railway for which such land shall be made over to the Company; so that when a total length of 250 miles shall have been made over, a sum of 25,000 *l.* shall have been deposited. For the remaining portion of the lines in excess of 250 miles, as and when any land shall be made over to the Company, a deposit of 100 *l.* for every mile of railway for which land shall be provided shall be paid to the Government by the Company.

I am here directed to remark, that the Government of India cannot consider that such a deposit of caution money as is now required of the company can cause any financial difficulty. It is not likely that it will ever exceed 1½ per cent. on the paid up capital.

20. Clause LXVI. The dates may be altered from 1865 and 1963 to 1867 and 1965 respectively.

21. Clause LXVII. Rights of property at close of term. The Governor General in Council objects to the insertion of the words proposed. The Government has consented to purchase at the end of the term the rolling stock, machinery, and plant, because it may be expected that they may be more or less convertible, if the Government does not desire to work the railways. But the buildings and structures not forming part of the roadway would have little or no selling value, and the Government must decline to pledge itself to any indefinite compulsory payment at the end of the term. The Governor General in Council is, however, willing to allow the Company, on the expiry of the term of the contract, the option of purchasing back the railways from the Government for a further term of 99 years, the Government waiving all claim to payment for the buildings, and limiting its rights, as ground landlord, to receiving the valuation of the land and road alone.

A clause as follows might embody this concession :—

Clause LXVII. A. Provided, that on the expiry of the above-named term, the Company shall have the option of purchasing back the railway from the Government for a further term of 99 years (and so on again at the end of such further term) for a sum to be determined on a valuation by arbitrators to be appointed as before declared, such valuation to be reckoned on the then present value of the land occupied by the railway and its appurtenances, and of the works forming the roadway with the permanent way thereon, but exclusive of all buildings, structures, and machinery erected thereon other than works being part of the roadway, also exclusive of the telegraph posts and wires affixed thereto, and the fences, gates, and the like; and the value of all buildings, works, and appurtenances thus excluded shall not be reckoned or taken into account in the said valuation. And on the payment by the Company to the Government of the sum so determined, the Company shall be entitled to retain possession of the railway, and all its works and appurtenances, for a further term of 99 years, subject to the same conditions in all respects as apply to the first term of 99 years. Provided that, if the Company desire to claim a renewal of the term of their grant under this clause, they shall be bound to give notice to that effect six months before the expiry of the original term. Provided also, that the full sum determined by arbitrators

arbitrators as aforesaid, on such valuation as aforesaid, shall be paid by the Company to the Government within 12 months after the arbitrators shall have published their valuation or award; and that in default of such payment, the provisions of Clause LXVII. shall immediately come into operation.

22. The Governor General in Council is prepared to agree to the following modification of Clause LXVIII., which relates to the Government right of purchase:—

Clause LXVIII. At any time within six calendar months after the expiry of 20 years from the 1st January 1870, and in like manner within six months after the expiry of 30, 40, 50, 60, 70, 80, and 90 years from such date, the Government may purchase such line or lines, with the engines, rolling stock, tools, buildings, telegraph posts and wires, and other appurtenances thereof. The Company shall thereupon . . . . said notice (as in original draft).

23. Clauses LXX. and LXXI. Rights of Property in case of surrender and forfeiture.—The Government cannot assent to pay the Company in the event of either surrender or forfeiture, for buildings and structures other than those forming part of the roadway, or the sum expended in constructing the road, less the amount of subsidy received. His Excellency in Council, however, has no wish to place the Government in a position to make a profit by reason of any breach of contract or misfortune of the Company, and is therefore ready to record his opinion that the following principles may reasonably be adopted by the Government hereafter in dealing with the works surrendered or forfeited, in the event of the Company determining to abandon the working of the railway under Clause LXX., or, in the event of the Government entering on the Company's works and taking possession under Clause LXXI.

First. In the event of the Government selling to any third party the works surrendered or forfeited, or any part of them, the Company would receive three-fourths of the net proceeds of the sale, after deducting the expenses of the Government incurred in connection with the surrender or forfeiture and sale, also after deducting all sums paid to the Company under the contract for the subsidy on the part of the line sold, and all sums paid by the Government for land for the same.

Second. In no case would the Company receive more than the actual sum disbursed by it for the construction of the works resumed, and the Government would retain any surplus.

Third. If the Government should lease the works, or take them under its own management, wholly or in part, it would pay over to the Company three-fourths of the net profits realised on the transaction year by year, after deducting all working expenses, and all expenses connected with the surrender or forfeiture, and the grant of the lease, or taking the works under Government management, also after deducting 10 per cent. on any capital that might be expended by the Government on the works; which amount of 10 per cent. would be dealt with as a preference claim before estimating the net profits to be divided with the Company.

Fourth. The Government, at any time after the expiry of five years from the date on which the works were surrendered or forfeited, would consider itself at liberty to redeem the annual payment of the share of profits payable to the company by a single payment, calculated at 20 years' purchase of the average sum paid to the Company during those five years, or the average of the three last years, whichever is the higher.

Fifth. The payment could be redeemed at any time on any other basis by mutual consent.

Sixth. If the Government should dismantle the works, wholly or in part, the Company would receive three-fourths of the net sum realised by the sale of the works or the materials, after paying all expenses, and otherwise on the general principles explained under heads first and second.

Seventh. If the works should be applied by the Government to any purpose from which no pecuniary profit is realised by the Government, the Company would have no claim to compensation whatever.

Eighth. The delaration of the Government as to the sums to be accounted for to the Company under these concessions should be considered final, and the Company could not be permitted to dispute the award of the Government, or to claim a detailed account, which would not be rendered by the Government to the Company, as all payments to the Company under these circumstances would be purely acts of grace on the part of the Government.

Ninth. The Company could not be permitted to interfere in any way with the discretion of the Government in disposing of or in managing the works after surrender or forfeiture, nor could any claim for compensation of any sort on account of any acts of the Government in dealing with the works after surrender or forfeiture be entertained.

The Governor General in Council is advised that the Government of India should not bind itself formally to the above views; but the Company will no doubt be prepared to receive this expression of opinion as a sufficient guarantee for the liberal treatment of the Company by the Government, in the event contemplated.

23 A. In Clause LXX., the word "ballast" should be introduced after "whatever description," in the last line of the 19th page.

24. The date in Clause LXXI. should be altered to 1st May 1873.

25. With the new clause (LIII. A.), providing for the refund of import duty paid by the Company on permanent way materials, the insertion of a further clause (which should follow Clause LXX.), providing for the repayment by the Company, in the event of surrender, of sums received on this account, is rendered necessary.

Clause LXX. A. The Company, before removing, under Clause LXX., any of the permanent way materials from the lines, or the part of them from which they propose to withdraw, shall repay to the Government (unless in any case it be otherwise specially agreed by the Government) the full sum paid by the Government to the Company for import duty on account of such materials under Clause LIII. A. of these special conditions; and if any sum so repayable to the Government shall remain unpaid for six months after the Company shall have withdrawn from the working of the lines, or of any part of them, as aforesaid, then all the said materials on such lines, or parts thereof, shall pass to and become vested in the Government absolutely, and the Company shall have no further right to claim or remove the same.

26. Clause LXXII. Rights of Property.—The insertion of the words "or working" after "opening" (line), is agreed to.

27. The Governor General in Council, in consenting to the above modifications in the draft conditions accepted by Mr. Wilson, trusts that they will be found to remove all the objections of the Directors, and that the contract will be executed without further delay. Should the altered conditions, however, not be accepted by the Company, the negotiations must be considered at an end. I am to add that the operations of the Company hitherto have been entirely at their own risk, and that the Government holds itself to be in no way pledged to allow any of the projected lines to be carried out by the Branch Railway Company, excepting as portions of the general system of Oudh and Rohilcund Railways, the construction of which, as a whole, is contemplated in the contract now under discussion.

I have, &c.
(signed) *R. Strachey*, Colonel, R.E.,
Secretary to the Government of India.

No. 2.

Sir, India Office, 23 June 1865.

I AM directed by the Secretary of State for India to acknowledge receipt of your letter of the 15th ultimo, forwarding copy of the reply of the Government of India to an application from the Directors of the Indian Branch Railway Company, for some modifications in the proposed conditions of concession to them of certain lines of railway in Oudh and Rohilcund.

The Government of India have, it appears, consented to modify some of the conditions, thereby meeting to a considerable extent the wishes of the Directors, who, however, still take exception to a few clauses of the draft agreement which has been drawn up for their signature, and express a hope that the Secretary of State will authorise some further changes in these clauses.

The clauses in question are LXII. to LXV., and LXX. and LXXI.

In reply, I am to state, with respect to Clauses LXII. to LXV., which relate to "Caution Money," that Sir Charles Wood cannot accede to the proposal that the deposit of caution money be limited to payments at the rate of 100 *l.* a mile for land made over from time to time to the Company; but he is willing so far to meet their wishes as to reduce the amount of caution money to the extent, and in the manner shown in the following amended clause (LXII.), which he is ready to sanction. The effect of the alterations is, that the caution money on 250 miles will be reduced from 25,000 *l.* to 10,000 *l.*

"Clause LXII. The Company shall deposit with the Government, as caution money, under Section XVII. under the General Act, the sum of 5,000 *l.* on or before the execution of the present agreement, the same being regarded as a payment at the rate of 20 *l.* per mile on 250 miles of the lines of railway enumerated in Clause XXVI., and six months after the execution of the agreement, a further payment shall be made by the Company to the Government, at the rate of 20 *l.* for every mile of railway the land for which shall have been made over to the Company up to that time. Hereafter, as and when the Company shall be placed in possession of additional land, a deposit shall be made by the Company with the Government at the rate of 20 *l.* for every mile of railway for which such land shall be made over to the Company; so that when a total length of 250 miles shall have been made over, a sum of 10,000 *l.* shall have been deposited. For the remaining portion of the lines in excess of 250 miles, as and when any land shall be made over to the Company, a deposit of 40 *l.* for every mile of railway for which such land shall be provided shall be paid to the Government by the company."

With regard to Clauses LXX. and LXXI., I am to state that Sir Charles Wood has carefully considered the remarks of the Directors; but that he cannot consent to the insertion of the words, "or any portion of them," in Clause LXX.; and further, that he cannot

cannot agree to their proposal, that "positive inability to raise sufficient capital be admitted into the category of causes beyond the control of the Company," exempting them from the penalty of forfeiture. On the contrary, he is of opinion that the positive permanent disability of the Company to raise sufficient capital for the prosecution of their undertaking would render it absolutely necessary for the Government to take the works out of their hands, as the only certain means of ensuring their being completed. Desirous, however, to give the Directors the utmost assistance in carrying out their undertaking, he will not object to the insertion of the following paragraph among those set forth in the 23rd section of the letter from the Government of India of the 9th March, as not formally binding the Government, though containing an expression of opinion which they hope will be regarded as a sufficient guarantee for the liberal treatment of the Company by the Government, in the events contemplated, viz.:—"The temporary inability of the Company to raise sufficient capital (after all shares which have been subscribed for have been fully paid up) to enable them to fulfil their engagements with the Government, and for which good and sufficient reason is to be given, should the occasion arise, will be liberally considered by the Government in exercising their powers, under Clause XXIX., to extend the terms agreed upon for the completion of the works."

Upon being informed that the draft agreement, as thus further modified, will be satisfactory to the Directors, Sir Charles Wood will advise the Government of India accordingly.

I am, &c.
(signed) *Dufferin.*

Major General Johnston.

No. 3.

(No. 226.)

Indian Branch Railway Company (Limited),
90, Cannon-street, London, E.C.,
7th September 1865.

Sir,

I HAVE the honour, with reference to your letter, dated 23rd June last, to inform you that the Directors of the Indian Branch Railway Company, while gratefully acknowledging the consideration which has been extended to their representations, are compelled again respectfully to request the attention of the Secretary of State for India in Council to some further remarks on the subject of the conditions to be attached to their agreement.

2. The shares of the company, instead of being at a premium, as they were at one time, of 2 *l.* 15 *s.* per share, are now at a very considerable discount, owing principally to the three following causes: The delay in obtaining the Government concession, the continued depressed state of the share market, and the disappointment experienced in the amount of traffic on the Nulhatee line. Until, therefore, the Lucknow and Cawnpore line is opened for traffic, and from its success (of which no doubt is entertained) confidence in the undertaking generally is restored, the Directors are satisfied that it would be injudicious, if not fatal to the interests of the Company, to make further calls, which in all probability would not be responded to.

3. Such result, I need scarcely remark, would be extremely detrimental to the interests of the Government and of the public, as well as to those of the Company, as it would unquestionably postpone to a distant period the completion of the system of railways in Oudh and Rohilcund; for, after the failure of the present Company, were any new Company found willing to embark in the enterprise, they would doubtless require far more favourable terms than those now granted by the Government in the way of subsidy, while much time would necessarily be lost in effecting new arrangements.

4. As observed in my former letter, the firm intention and anxious desire of the Company is to carry out the whole system of lines for which they are negotiating, but under the circumstances now stated it would evidently be impossible for them to extend their operations at present, and the Directors therefore trust that the Secretary of State will not require them to do so until the Lucknow and Cawnpore line is opened for traffic; this event they expect will take place early in next year, and they feel confident that a very short time will then suffice to place the undertaking in a most favourable position, and that funds will readily be obtained for completing the whole of the "loop line" within or nearly within the date now prescribed, viz., the 1st May 1869.

5. I am requested to state that the delay which has taken place, and which the Directors much regret in replying to your letter, has been occasioned by the continued absence from town of several of the Directors of the Company.

I have, &c.
(signed) *C. C. Johnston*, Managing Director,
Indian Branch Railway Company, Limited.

The Under Secretary of State
for India.

No. 4.

Sir, India Office, 20 October 1865.

I AM directed by the Secretary of State for India to acknowledge the receipt of your letter of the 7th ultimo, No. 226, in which you request that the Indian Government will not require the Indian Branch Railway Company to proceed with any other portion of their undertaking than the Cawnpore and Lucknow branch until that line is opened for traffic.

In reply, I am to state that Sir Charles Wood has received this application with great regret and disappointment.

The directors represent their inability to raise capital at the present time, and attribute it to three causes, viz.:—

I. The delay in obtaining the Government concession.
II. The continued depressed state of the share market.
III. The disappointment experienced in the amount of traffic on the Nulhatee line.

With regard to the first of these alleged causes of inability to raise capital, I am to observe, that when the short line between Benares and Jounpoor had, in compliance with the request of the Company, been included in their general project, Sir Charles Wood was under the impression that the matter was finally settled on the terms which had been agreed upon in India by the Government of India and the Company's agent, as was stated in Mr. Melvill's letter of 20th October 1864.

Any delay which has occurred has arisen from the Company's subsequently raising objections to some of the conditions which had been formally agreed to by their accredited agent in India.

With regard to the third cause, it does not appear to Sir Charles Wood that any failure on the Nulhatee branch is an index as to the possible result of the Company's operations in the important country through which it is proposed to carry their lines.

The second obstacle to their raising money, *i.e.*, the present depressed value of the Company's shares, and the general state of the market for similar investments, is certainly a matter for more serious consideration; and Sir Charles Wood is willing to meet the Directors' wishes as far as he can properly do so.

I am to observe that the contract between the Indian Government and the railway company has not yet been executed, and it appears to Sir Charles Wood that the first step to be taken must be to complete that indispensable preliminary. The Directors must further clearly understand that Sir Charles Wood cannot consent to the Cawnpore and Lucknow line being considered in any way other than as a part of the whole scheme of the Company's lines in Oude and Rohilcund. The Cawnpore and Lucknow branch is a very small part of them, and never would have been conceded to the Company as a separate undertaking. The object which was contemplated and proposed to Sir Charles Wood by the gentlemen who did him the honour of waiting on him in

last, as a deputation from the Railway Company, was to develope the resources of Northern India by means of a main line through the length of the districts north of the Ganges.

The Directors repeat in their present letter that it is "the firm intention and anxious desire of the Company to carry out their whole system of lines," but they now request that they may not be required to "extend their operations at present until the Lucknow and Cawnpore line is opened for traffic," which event they expect will take place early in the year 1866.

I am directed to acquaint you that to this extent Sir Charles Wood is prepared to accede to the Directors' wishes, but they must understand that he will require that the contract be at once executed, and he fully relies on the distinct assurance of the Company, that they will be prepared to proceed with the other works included in their scheme as soon as the Cawnpore and Lucknow line is opened for traffic next year.

It must also be distinctly understood that this indulgence as to time will not affect the conditions of the contract applicable to the completion of the whole of the works undertaken by the Company in the event of their non-performance of them.

I am, &c.

Major General C. C. Johnston. (signed) *Herman Merivale.*

No. 5.

(No. 300.)

Indian Branch Railway Company (Limited),
90, Cannon-street, London, E.C.

Sir, 31 November 1865.

IN reply to your letter of the 20th ultimo, I have the honour, by desire of the Directors of the Indian Branch Railway Company, to express their grateful acknowledgments for the consideration shown in allowing them to postpone extending their operations until the Lucknow and Cawnpore line is opened for traffic.

2. That

2. That the execution of the agreement may also be allowed to remain in abeyance until that event takes place is a further request that the Directors venture to submit for the favourable consideration of Sir Charles Wood.

3. The extent to which the Company's operations have been carried on will be made clear by reference to the annexed statement and sketch map, from which it will be seen that although the number of miles actually under construction is limited, the area of country over which not only surveys, but detailed working plans and sections have been elaborated, is very extensive, comprising in fact the whole area which the Company propose to occupy eventually with their lines of railway.

4. These extensive operations will, it is hoped, be accepted as a sufficient earnest of the firm intention of the Directors to carry out their system in its entirety, and their only object in desiring to delay the formal execution of the agreement is that the present depressed state of the Indian Branch Railway shares in the market may not be aggravated.

5. The opening of the Lucknow and Cawnpore line will no doubt restore the confidence, which has been shaken, in the Company's undertaking, and the Directors will then gladly avail themselves of the earliest opportunity to execute the agreement, but were the shareholders to be told at the present crisis that they were bound, under certain heavy penalties in the event of failure, to construct some 800 miles of railway, the almost certainty is that the majority of them would at once refuse to give their further support.

6. The Directors now venture to solict the consideration of the Secretary of State to the subject of their finances. The present financial position of the Company is shown in the annexed statement (before referred to), from which it will be seen that to complete the Lucknow and Cawnpore Line, and to meet the liabilities of the Company up to the 30 h April next, a sum of 63,300 *l.* is required.

7. For the reasons given in my former letter,* the inexpediency of making a call at present is sufficiently obvious, and in the continued depressed state of the share market there would be but little hope of a further issue of debentures meeting with public favour, unless offered at a great sacrifice to the interests of the Company, the Directors would therefore look with confidence to the liberality of the Secretary of State in Council in assisting them under their temporary difficulty.

* No. 226, dated 7th September 1865, page 9.

8. In limiting their operations for the present to Lucknow, the Directors are acting most unwillingly. They are fully aware of the great advantages that would attend the extension of the line from that town to Byram Ghât, which is situated at the head of the navigation of the River Gogra. The returns lately received from India show that of the traffic between Lucknow and Cawnpore three-fourths are from the former to the latter town, and that a large proportion of these three-fourths comes from beyond Lucknow, from Byram Ghât, and the country north of the River Gogra. The returns also show that there is a larger traffic between Lucknow and Byram Ghât than between Lucknow and Cawnpore. The length of this extension is 36 miles, and the sum required to complete it, and provide sufficient additional rolling stock, would probably be 150,000 *l.*

9. It would be needless for me to attempt to explain how much the interests, not only of this company, but of the main railway Company, and of the Government and public, would be affected by the construction of a bridge across the Ganges. The subject has been fully considered by the Directors and by Mr. Wilson, who, from sections of the river bed carefully taken by engineers of this Company, has prepared a design for bridging the river at Cawnpore. The design has been studied by Messrs. Kennard, of Great George-street, Westminster, and those gentlemen are prepared to enter into a guaranteed contract to construct the bridge for a sum of 175,000 *l.*, should Government be induced to undertake the work.

10. The three points noticed in the preceding paragraphs, viz., the completion of the Lucknow and Cawnpore line, the extension of the line to Byram Ghât, and the bridge over the Ganges at Cawnpore, are those to which the Company desire to draw the attention of the Secretary of State in Council, with the view of his affording them such pecuniary aid as will permit of these works being carried out at an early period.

11. The Directors are quite satisfied, as observed in your letter under reply, that any failure on the Nulhatee line is not an index of the result likely to follow the Company's operations in Oudh and Rohilkund, but that it is not so is unfortunately not equally apparent to the shareholders, otherwise the shares would not have fallen in value as they have done. Having, however, so fallen, no explanation the Directors may give will suffice to convince the shareholders that their future are better than their past prospects of success. Nothing, in fact, short of practical proof will be of any avail, and the Directors must, of necessity, await that proof until the Lucknow and Cawnpore line has been worked for at least six months, if not for a longer period.

12. The Company, in addition to the Nulhatee line which has been working since December 1863, have constructed 42½ miles of their Lucknow and Cawnpore line, and they would invite an inspection of the works by some Government officer. They would further invite an inspection of the permanent way materials, engines, and carriages, which have been

been provided in this country, and which they are firmly convinced will be found to be unsurpassed in excellence, and promise of great durability.

13. Were it not that this letter would be drawn out to an inconvenient length, much more might be advanced in support of the request for assistance which the Directors now venture to make, and they would solicit the favourable consideration of Sir Charles Wood to the questions above noticed, involving together an expenditure, in round numbers, of 388,000 *l.* as in the margin. The expenditure of this amount would be spread over two years, or propably more, and as the Messrs Kennard, for the cost of the bridge, are prepared to accept debentures guaranteed by the Government, and bearing interest at 5 per cent. per annum, the sum that would be required by the Company during the next 12 months may be stated at 100,000 *l.*, and this also the Directors would be glad to raise upon debentures guaranteed by the Government.

	£.
Bridge	175,000
To complete Lucknow and Cawnpore Line	63,000
Extension of ditto to Byram Ghât	150,000
£.	388,000

14. The paid-up capital of the Company amounts to 300,000 *l.*, viz., 200,000 *l.* in deposit and first call, and 100,000 *l.* in debentures, and the expenditure, up to the 30th September last, has been 269,915 *l.* 9 *s.* 8 *d.* (as shown in the margin), and for the assistance asked from the Government the security the Company has to offer is the "Nulhatee" Line and the "Lucknow and Cawnpore" Line, for though the latter is not at work, the road has been constructed, and the whole of the materials and rolling stock for it provided.

	£.	s.	d.
Materials, plant, rolling stock, &c.	113,902	7	10
Works	68,285	9	8
Engineering and Superintendence, including Surveys	53,301	2	2
Home Office, Interest upon capital, &c.	34,426	10	–
£.	269,915	9	8

15. Accompanying this letter is a copy of a report by Mr. Wilson, on the prospects of the Lucknow and Cawnpore Line, which will doubtless be perused with much interest by the Secretary of State. In favour of the extension of the line to Byram Ghât, Colonel Gompertz, when Acting Agent of the Company, wrote as follows, in June last:—

"Byram Ghât is situated at the head of the Gogra navigation, and is a place of considerable commercial importance, serving as a depôt for the produce of the Barraitch district, between the Gogra and Nepaul, and is the centre of an immense timber trade, going to Lucknow and Cawnpore, &c., &c. Directly we reach Byram Ghât we establish a communication with the vast forests on the opposite side of the Gogra, which will furnish an inexhaustible supply of fuel, and removes all difficulties on this head. I would therefore strongly urge our going on with this line as expeditiously as possible, as, from all the information I have been able to obtain, I have no doubt that the whole of the line from Byram Ghât, through Lucknow, to Cawnpore will prove the best paying line in this country.

16. Copies of letters from Messrs. Kennard to Mr. Wilson, stating the cost at which they are prepared to undertake the construction of a railway bridge across the Ganges, together with a plan of the bridge, are also forwarded for the information of the Secretary of State.

I have, &c.
(signed) *C. C. Johnston*, Managing Director,
India Branch Railway Company (Limited).

The Under Secretary of State for India.

Enclosure 1 to No. 5.

STATEMENT of Work done on the Lines of Railway in Oudh and Rohilkund, proposed to be constructed by the Indian Branch Railway Company.

1. The loop line, viz., from Cawnpore, through Lucknow, to Dilserai, Usrengurh, to Benares.

Section.		Miles.
I.	Cawnpore to Lucknow	45
II.	Lucknow to junction with main line at Dilserai	24
		69
III.	Main line from Dilserai junction to Usrengurh, the Benares junction with main line	100
IV.	Usrengurh junction to Benares	76
	Total of "loop line"	245
V.	Dilserai junction to Byram Ghat	12
VI.	Shahgunge junction to Fyzabad	14
		271

Section

Section I. From the river Ganges to Lucknow, 42½ miles. Roadway finished and ready to receive the permanent way, the dispatch of the materials for which was commenced in July last.

Four locomotives will be shipped next month, and the line may be fully expected to be opened for traffic by the middle of next year. It would have been so earlier, had the Company not been disappointed in the time at which the permanent way materials were promised.

Two and a half miles from the River Ganges to Cawnpore junction with East Indian Railway. Plans completed. A temporary line will be laid over this distance, pending the settlement of the site at which the river is to be eventually bridged.

Section II. Lucknow to Dilserai junction with main line, 24 miles. Plans *all* completed, and land made over from Lucknow to Nawabgunge, 18 miles.

10,775 rupees have been expended on earthworks, which are now stopped pending the opening of the line to Lucknow.

From Nawabgunge to Dilserai, six miles. Line set out.

Section III. Main line between Lucknow and Benares branches, that is, from Dilserai to Usrengurh, 100 miles. Working sections and land plans completed.

Section IV. Usrengurh junction to Benares, 76 miles. Plans *all* completed, and estimate prepared.

Section V. Dilserai junction to Byram Ghât, 12 miles. Plans *all* completed.

Section VI. Shahgunge junction to Fyzabad, 14 miles. Plans *all* completed, and line set out.

2. Thus it will be seen that the company are in a position at any time to commence active operations in constructing the whole of the loop line, with the short branches to Byram Ghât and Fyzabad, comprising a total length of 271 miles, including the section between the Ganges and Lucknow.

3. In addition to the above, the main line from Shahjehanpore to Shahabad (the proposed junction with the branch to the East Indian Railway at Allyghur), 71 miles, has been set out, and the working sections partially prepared ; and for 34 miles of the distance, that is, from Shahabad to Bareilly (the proposed junction with the branch to Nynee Tal), the estimate has been prepared.

4. Again, the main line from Dilserai (the Lucknow junction) has been set out to Seetapoor, 50 miles, and from Usrengurh (the Benares junction) for a distance of 22 miles towarde Buxar, or to a point within eight miles of Azimgurh.

5. Trial sections of the main line have been taken from Seetapoor to Shahjehanpoor, 45 miles, and from Mooradabad to Roorkee, about 70 miles.

6. Between Shahabad and Mooradabad, 40 miles, the land surveys and sections have been made.

7. The following will probably make more clear what has been done:—

Main Line.

Miles.	
247	Line set out.
40	Land surveys and sections made.
98	Line determined and sections taken.
About 115	Trial sections taken.
500 miles.	

Branch Lines.

45	Lucknow and Cawnpore, ready for permanent way.
24	Lucknow to Dilserai. Land made over, and works commenced, but temporarily stopped.
76	Benares.
14	Fyzabad.
12	Byram Ghât.
102 miles.	The plans have all been completed, and the lines set out.
71	Nynee Tal.
74	Allyghur.
145 miles.	Trial sections taken.
	500 miles, Main Line.
	316 „ Branches.
Total - -	816 miles.

8. The cost of the Lucknow and Cawnpore line will be, as nearly as can be ascertained, 200,250 *l.*, or 4,450 *l.* per mile, viz., 1,800 *l.* for constructing the line, buildings, &c., and 2,650 *l.* for permanent way and telegraph materials, stores, plant, rolling stock, &c.

(1.)	£.	s.	d.
Rails	11,784	5	6
Sleepers	790	–	1
Telegraph materials	528	16	6
Plant	1,958	10	9
Carriage, freight, and brokerage	1,305	19	2
£.	16,367	12	–

(2.)	£.	s.	d.
Works	4,550	–	–
Permanent way	7,130	–	–
Plant	60	–	–
Landing, carriage, and leading charges	50	–	–
Octroi tax	10	–	–
Engineering and office	7,800	–	–
Surveying, and portions of general charges	1,400	–	–
£.	21,000	–	–

(3.)	£.	£.
Earthwork	200	
Bridges and culverts	150	
Ballast	270	
Level crossings	60	
Fencing	70	
Stations	470	
Temporary buildings	20	
Maintenance for one year	100	
Engineering and superintendence	260	
Contingencies	200	
		1,800
Permanent way, including turn-tables and weighing machines	1,225	
Telegraph materials	25	
Rolling stock	750	
Carriage, freight, and brokerage	550	
Contingencies	100	
		2,650
Per Mile £.		4,450

	£.	s.	d.
Or for 45 miles	200,250	–	–
Deduct Accounts (1) and (2)	37,367	12	–
Balance £.	162,882	8	–

(4.)	£.
Interest on shares to 31st December 1865	5,100
„ Debentures, 15th October 1865	1,350
„ „ 31st December 1865	160
„ „ 15th April 1866	1,750
Commission on ditto	400
Directors' remuneration	940
Office expenditure	500
Mr. Wilson's salary	2,800
£.	13,000

(5.)	
Funds in England	68,200
Ditto in India	39,800
£.	108,000

9. The expenditure to the 30th September has been :

	£.	s.	d.
In England, as per marginal Account, No. 1	16,367	12	–
And to 30th in India, as per marginal Account, No. 2	21,000	–	–
Making a Total Expenditure of £.	37,367	12	–

and leaving, as per marginal account, No. 3, a sum of 162,882 *l.* 8 *s.* to complete the line. To this has to be added, for liabilities in England to the 30th April next, 13,000 *l.* (as per Account, No. 4), and deducted 4,500 *l.*, which will not be required for the works between the Ganges and Cawnpore till after April, leaving a total of (in round numbers) 171,300 *l.*; and to meet this the assets of the company are (as per Account, No. 5) 108,000 *l.*

£. 63,300 will therefore be required to complete the Lucknow and Cawnpore line, and to meet the general expenses of the company to the 30th April 1866, that is—

	£.	£.
To complete the Lucknow and Cawnpore line		162,800
Liabilities		13,000
	£.	175,800
Deduct, not required till after April 1866	4,500	
Assets	108,000	
		112,500
Funds required £.		63,300

Indian Branch Railway Company, Limited,
90, Cannon-street, London, E.C.,
21 November 1865.

(signed) *C. C. Johnston*,
Managing Director.

Enclosure 2 to No. 5.

36, Great George-street, Westminster, S.W.,
4 November 1865.

Dear Sir,

We have carefully studied the drawings you have prepared for the bridge proposed to be made to carry the Indian Branch Railway across the Ganges at Cawnpore, and we are prepared to execute a contract undertaking to complete the whole of the work connected with it, including the abutments, for the sum of 175,000 *l.*

We are, &c.
(signed) *Kennard Brothers.*

J. E. Wilson, Esq., C.E.,
Agent and Chief Engineer, Indian Branch Railway.

Enclosure 3 to No. 5.

36, Great George-street, Westminster, S.W.,
Dear Sir, 8 November 1865.

REFERRING to our respects of the 4th instant, we beg to say that the sum of 175,000 *l.* therein named is intended to cover the entire cost of the bridge erected in its place, in accordance with the drawings, ready to receive the rails (which we presume will be laid by the Railway Company), including the manufacture in this country, freight, sinking the cylinders to the required depth, and filling them with concrete, fixing the superstructure and platform, and painting the entire work, the whole of which is to be executed to the satisfaction of the engineer appointed by the Government for the purpose.

We are, &c.
J. E. Wilson, Esq., C.E. (signed) *Kennard Brothers.*

No. 6.

Sir, India Office, 21 December 1865.

I AM directed by the Secretary of State for India to acknowledge receipt of your letter of the 21st ultimo, No. 300, requesting, in reply to the letter from this office of the 20th October last, that the execution of the contract between Government and the Indian Branch Railway Company may be allowed to remain in abeyance until after the Cawnpore and Lucknow line has been opened for traffic, and that a certain amount of capital required for the Company's undertaking may be guaranteed at the rate of 5 per cent. per annum.

The request preferred in your previous letter of the 7th September, to the effect that the Company should not be required to proceed with any portion of their undertaking beside the Cawnpore and Lucknow branch until the latter should be opened for traffic, was received by Sir Charles Wood with much regret and disappointment, and these feelings, I am directed to say, are greatly increased by the contents of your present letter, which discloses a wholly unexpected state of affairs.

Sir Charles Wood had been led to believe that under the name of the Indian Branch Railway, a powerful association had been formed for the purpose of developing the resources of the Indian provinces north of the Ganges, free from the objections involved in the guarantee system. He had been assured of their competence to execute all they proposed to undertake, and gladly hailing the prospect of extensive usefulness held out by them, had readily conceded all the support and assistance on the part of Government which they represented to be requisite for their success. The terms mutually agreed upon between the Government of India and their own accredited Agent were at once confirmed. These terms included, together with minor advantages, the grant of the necessary land and of a pecuniary subsidy, and when the Directors solicited the extension of these terms to a portion of their undertaking, which the local government at first proposed to exclude, this point also was conceded by the Secretary of State.

Sir Charles Wood naturally supposed that, on this being arranged, all preliminaries had been settled; that a contract defining the reciprocal obligations of the Government and of the Company, would at once be signed by the latter, and that operations would thenceforward proceed with the business-like regularity which was to be expected from the character and position of the parties engaged in them.

This expectation, however, is very far from being realized. First, in October 1864, various objections, previously unheard of, were raised by the Directors to the terms arranged by their Agent with the Government of India, and by themselves with the Secretary of State, and in which they had apparently entirely acquiesced. Next, in September last, came an application for permission to confine operations for the present to only a small portion of the line which they had undertaken to construct; and this point also having been yielded, conditionally, however, on there being no further delay in the execution of the contract, the Directors now not merely ask that such execution should be indefinitely postponed, but also apply for a Government guarantee to assist them in raising further capital.

Nothing can be more unsatisfactory than the present state of things, in which the mutual relations of the two parties are left open to continual discussion. The object of Government in making the concessions already agreed to, was twofold. First, it desired to provide for the construction of a continuous line of railway communication through Oude and Rohilcund (and, except in the full conviction that this continuous work would be taken up as a whole, the Lucknow and Cawnpore line would never have been conceded to the Branch Railway). Secondly, it desired to encourage investments in India by English capitalists, free to manage their own affairs according to their own judgment, without Government interference.

It is clear from the Directors' own statements that there is now little hope of either of these objects being realized. The amount of capital required to carry out their original projects is certainly not less than two millions sterling, but they have not hitherto succeeded in raising

more than 200,000 *l.* from the shareholders of the Company, and their present application amounts to a practical acknowledgment of their inability to raise more. They shrink, consequently, from signing the deed of contract which defines their liability, and would bind them to execute what they have undertaken, but what they no longer expect to be able to perform.

In this posture of affairs, the question arises what is the most expedient course. To comply with the Directors' last requests, Sir Charles Wood feels to be impossible, consistently either with the principles which have hitherto governed his relations with the Company, or with due regard to the public interests. What he has chiefly to consider, is how the latter interest may best be protected; and he is anxious to adopt that course which, while effectually providing for the main object, will be least prejudicial to the Branch Railway Company. What would be most beneficial to all parties would be that the Company should, upon reconsideration of its position, find itself to be capable of carrying out its original programme, and Sir Charles Wood would in that case be quite ready to abide by the terms of his letter of 20th October last.

He cannot dispense with the execution of the contract, for, as before remarked, nothing can be more unsatisfactory than the present state of the relations between the two parties, which rest merely on an understanding, and are not binding on either side.

So far as concerns the line from Cawnpore to Lucknow, it is most desirable that this should be completed, and if the Company cannot otherwise obtain the sum of 63,300 *l.*, the amount stated by them to be necessary for its completion, he is ready, on the contract being signed, to advance that sum for three years, at five per cent. interest, on the security of the works and rolling stock of the Lucknow and Cawnpore line. But if the Company do not find themselves in a position to comply with this condition, and to prosecute their undertaking with a fair prospect of being able to raise the requisite funds, he thinks it will be far better that the Government should take over the concern, with its liabilities, as it stands at the present market value of the shares.

I am, &c.

Major General C. C. Johnston. (signed) *Herman Merivale.*

— No. 7. —

(No. 39.)

Indian Branch Railway Company, Limited,
90, Cannon-street, London, E.C.,
27 January 1866.

Sir,

I HAVE the honour to acknowledge your letter of the 21st ultimo, and by desire of the Directors of the Indian Branch Railway Company to express their regret at not being able, under the views expressed by Sir Charles Wood and the conditions imposed, to avail themselves of the Government loan of 63,300 *l.*, required for the completion of the Lucknow and Cawnpore line of railway.

2. In the opening paragraph of your letter, and again in the conclusion of paragraph 5, it is observed that a Government guarantee is requested for a certain amount of capital required by the Company, but, in the known acceptation of the terms of a Government guarantee, as granted to the Indian Railway Companies generally, the loan applied for by the Directors cannot, they respectfully submit, be considered analogous. The suggestion of raising the money required on debentures guaranteed by the Government was certainly made in my letter of the 21st November 1865, but merely as an alternative, in the event of the Government not finding it convenient to advance the sum, but, in either case, the security offered by the Company was some three times the value of the loan asked.

3. From financial considerations, the nature of which has been represented in my former letters, the Directors, rather than jeopardize the promising undertaking in which the Company has embarked, and in which the Government and the public are deeply interested, ventured to represent the state of their affairs to the Government, in the hope that they might see reason for granting to the Company a certain measure of temporary assistance. The word temporary is used advisedly, because it is confidently expected that the opening of the Lucknow and Cawnpore line, some six months hence, will see the Company fairly started before the public. From the delays that have occurred, coupled with the ill success of the Nulhatee line, there is no doubt that the confidence of the shareholders has been considerably shaken, and hence the course which the Directors have considered it expedient to adopt in not calling upon them to pay up further capital until that confidence is restored.

4. Of the cause of the delays there is, and will probably continue to be, a difference of opinion. In my letter of the 27th October 1864, it was shown that the Government of India distinctly declined to allow Mr. Wilson to execute the contract; that the contract was not received by the Directors till the 5th August, and that the delay on the part of the Government of India in sending it home had twice been made the subject of complaint to the Secretary of State. In the same letter it was notified that until the conditions of the contract, to which many exceptions had been taken, were finally settled, the Directors proposed to limit their construction operations to the Lucknow and Cawnpore line, and they cannot but feel that the course they have pursued is one dictated as well by prudence as a sense

a sense of justice to that portion of the public who have embarked with them in their undertaking.

5. In the 2nd paragraph of your letter, it is observed that the request of the Company not to extend their operations until the Lucknow and Cawnpore branch was opened for traffic was received by Sir Charles Wood with surprise and disappointment, but still, in your previous letter it was admitted that one of the grounds upon which that request was made, viz., the present depressed state of the Company's shares and the general state of the market for such investments, was a matter for serious consideration.

6. Referring to the 3rd paragraph of your letter, the Directors would respectfully observe that the Company is, as it has been from the beginning, a substantial one, and that the intention of it is fully to carry out all they have ever proposed to undertake. They cannot admit that they have ever been committed to the terms which were discussed between their Agent and the Government of India, nor that the extension of the subsidy to a portion of their undertaking, that is, to the Benares branch, was at first excluded by the local Government. That extension has been distinctly allowed by Lord Elgin, and was included in the printed draft of conditions drawn up by the Government officer, and was subsequently objected to by Sir John Lawrence. The evident misunderstanding in respect to this branch was represented to Sir Charles Wood, and he was pleased to accord his approval to its being included in the Company's system.

7. Referring to paragraph 4, I am to observe that the conditions of the contract, though in most of the essential points to which the Directors took exception, essentially modified, are still in the penalty clauses so stringent and severe, that, in the present financial position of the Company, the Directors would not feel justified in accepting them.

8. In reference to paragraph 5, as before observed, the Directors took the earliest opportunity of expressing their views on the conditions of the contract, and they would respectfully observe that those conditions, upon which they commented in October 1864, had never been accepted by them with the Secretary of State, excepting as regarded the aid to be granted by Government in the way of the free gift of land and an annual subsidy.

9. The objects of the Government, as stated in paragraph 6 of your letter, have always been clear to the Directors, but it does not appear to them that their affairs, as stated, were to be managed without the interference of Government. The whole plan of their operations has not only to be subjected to the approval of Government, but the tariff of their charges, a most, if not the most, essential matter in connection with a railway, is to be dictated by the Government.

10. In paragraph 7, two millions sterling is mentioned as the capital required by the Company to carry out their original projects, but to complete the 800 miles comprised in their system at least double that amount will be required, and it appears necessary to point out that, though only 200,000 *l.* have been raised on shares, the shareholders are liable for the additional 100,000 *l.* raised on debentures, and though the Directors, for the reasons given, have considered it inexpedient to make a further call at present, they would respectfully submit that their not desiring to do so cannot be construed into an inability to raise more capital. In like manner, for the reasons given, they desire to postpone the execution of the contract, but such desire does not result, as they regret to observe stated in your letter, from no longer expecting to be able to perform what they have undertaken.

11. With reference to paras. 8 and 9, I am to observe that there is no intention on the part of the Directors not to adhere to their original scheme; they have, on two former occasions, stated their firm intention to do so, and all they ask is, from the difficulties which have arisen since the negotiations with the Government were first opened, difficulties not due in any way to themselves, to be allowed time, probably some nine months, or certainly not more than 12 months, to admit of their undertaking being placed in such a position as will restore the confidence of the public in it.

12. I am further desired to remark, with reference to the concluding paragraph of your letter, that failing in obtaining the loan from the Government, the Directors will take immediate steps to obtain it elsewhere, being resolved to carry to completion their Lucknow and Cawnpore line, at whatever present sacrifice. The success of the Company depends upon that being done, and when the line has been fairly opened for traffic they have no doubt of being able to raise whatever further funds they may require. Under any circumstances, the Directors must respectfully decline to adopt the very unexpected suggestion of making over their concerns to the Government at the present market value, or in other words at less than half their cost.

13. The motives which induced the Directors, in the extremely difficult state of the money market, to apply to Government for a temporary loan have been so fully stated in my several letters that it is needless to refer to them at greater length. The undertaking in which the Company has embarked is one in which the Government are immediately interested, and on that ground the Directors considered there would be no impropriety in placing before them the actual position of their affairs, which they feel they have done without the least reserve, in view to obtaining some temporary assistance. From the tenor however of your letter now under reply, the Directors cannot but express regret that they should have done so, from the feeling they entertain of the impossibility of complying with the terms

demanded by Sir Charles Wood, either to execute the contract at once as a condition of receiving the loan of 63,300 *l.*, or of surrendering their property to the Government for half its cost.

I have, &c.
(signed) *C. C. Johnston,*
Managing Director, Indian Branch Railway Company, Limited.

The Under Secretary of State for India.

— No. 8. —

Sir, India Office, 1 February 1866.

YOUR letter of the 27th ultimo, No. 39, has been received and laid before the Secretary of State in Council.

Sir Charles Wood will only observe that the offer which he made to the India Branch Railway Company of taking the construction of the railroad off their hands, was made simply to relieve them of any difficulty, but he is glad to learn that they propose to raise the requisite sums for carrying on their undertaking in the ordinary way.

I am, &c.
(signed) *Dufferin.*

Major General Johnston.

— No. 9. —

(No. 114.) Indian Branch Railway Company, Limited,
90, Cannon-street, E.C.,
12 March 1866.

Sir,

I HAVE the honour, by desire of the Directors of the Indian Branch Railway Company, to submit, for the information of the Secretary of State for India in Council, the accompanying documents, which were circulated to the shareholders prior to a special general meeting held on the 21st ultimo, and at which meeting the resolution of the directors to raise a sum of 100,000 *l.* on debentures was confirmed.

2. In the present extremely unfavourable state of the money market, the difficulty of raising money on debentures, excepting on the most exorbitant terms, especially in the case of an Indian Railway Company unsupported by a Government guarantee, will be sufficiently evident, and the Directors therefore, with reference to the correspondence noted in the margin,* again venture to submit the position of their Company for the favourable consideration of the Secretary of State.

* No 300, 21st November 1865, from the Indian Branch Railway Company.
21st December 1865, from the Secretary of State.
No. 39, 27th January 1866, from the Indian Branch Railway Company.
1st February 1866, from the Secretary of State.

3. The enterprise in which the Company has embarked is unquestionably one in which the welfare of a large section of the public of India is deeply concerned, and the Directors consequently feel that there is no impropriety in again expressing a hope that the Secretary of State may see fit to give their Company some measure of support, not in the way of granting them a guarantee, but by making them a loan of 60,000 *l.*, at five per cent. per annum, for two years, on the security of the Company's debentures for that amount.

4. This assistance, with the funds already raised, will be ample to enable the Company efficiently to complete the Lucknow and Cawnpore line, and furnish it with rolling stock; and the Directors anticipate that the working of the traffic will, even by the end of the year, show such a favourable result that they will have no difficulty in raising the further capital required to carry out the whole of their projected system of railways, and that they will then be in a position to execute the contract for the same, which they are most desirous of doing.

5. The resolution, as passed at the special general meeting referred to, was as follows:—
"That the Board be authorised to issue a second series of debentures for three, five, or seven years, to the extent of 100,000 *l.*, to bear interest at five per cent. per annum.

I am, &c.
(signed) *C. C. Johnston,*
Managing Director.

The Under Secretary of State for India.

— No. 10. —

Sir, India Office, 26 March 1866.

I AM directed to acknowledge receipt of your letter of 12th inst., No. 114, stating that the directors of the Indian Branch Railway Company have been empowered by their shareholders to borrow 100,000 *l.* on debentures, but that in the present unfavourable position of the money market they have found it impossible to raise the money except on most exorbitant terms, and requesting from the Secretary of State for India, in order to enable them to complete and furnish with rolling stock the Cawnpore and Lucknow portion of their undertaking, a loan for two years of 60,000 *l.*, at 5 per cent., on the security of debentures to that amount.

In reply, I am directed to state that Lord De Grey, in consideration of the public importance of the Company's undertaking, and of the difficulties in which they are at present placed, is prepared on certain conditions to comply with the Directors' request.

In all recent communications from this office to the Directors, any further assistance has been refused until they should have executed a contract pledging the Company to complete the whole system of railways through Oude, Rohilcund, and other portions of the North Western Provinces, for the construction of which a provisional agreement has been entered into between them and the Government of India; but Lord De Grey will not, under existing circumstances, insist on this precise stipulation. Before taking any other step, he must request to be furnished with the opinion of your legal adviser as to the competency of your Directors to give the proposed security. On being satisfied on that point, he will be prepared to make the Company the required loan, provided the Directors will engage that, at the end either of four years from the present date, or of two years from the day when the Cawnpore and Lucknow branch shall be opened for traffic, whichever may be the shorter period of the two, they will either execute a contract for the construction of the whole system of railways, on terms of which the Government of India may approve, or will transfer to the Government of India in full property the Cawnpore and Lucknow branch, on being reimbursed the amount expended by them upon it, less any debt which may be due from them to the Secretary of State or to the Government of India.

I am, &c.

Major General C. C. Johnston. (signed) *Herman Merivale.*

No. 11.

(No. 140.) Indian Branch Railway Company, Limited,
90, Cannon-street, London, E.C.,

Sir, 27 March 1866.

IN reply to your letter of the 26th instant, I have the honour, by desire of the Directors of the Indian Branch Railway Company, to express their grateful acknowledgments for the consideration given by the Secretary of State to the application for a loan of 60,000 *l.*, contained in my letter of the 12th instant, No. 114.

2. It will be seen, from the opinion of the legal advisers of the company, which is furnished in accordance with your request, that, in reference to the terms of the resolution authorising the issue of debentures, there was an informality in specifying two years as the period for which the loan was asked; this difficulty may probably be got over by calling a special meeting of the shareholders of the Company to authorise an alteration in the wording of the resolution, but probably the Secretary of State will not object to the loan being granted for a period of three instead of two years.

3. As a condition of the loan, the Directors willingly engage, at the end either of four years from the present date, or of two years from the date of the Lucknow and Cawnpore line being opened for traffic, whichever may be the shorter period of the two, either to execute a contract, in terms to be approved by the Government of India, for the construction of the whole system of the Company's railways, or to transfer to the Government of India in full property the Lucknow and Cawnpore branch, on being reimbursed the amount expended by them upon it, less any debt which may be due from them to the Secretary of State or to the Government of India.

I have, &c.

(signed) *C. C. Johnston*, Managing Director,
Indian Branch Railway Company, Limited.

The Under Secretary of State
for India.

Enclosure to No. 11.

57, Coleman-street, London, E.C.,
27 March 1866.

Dear Sir,

With reference to the communication from the Secretary of State for India of the 26th instant, we beg to state that, under the Articles of Association, the Indian Branch Railway Company (Limited) are empowered, with the sanction of a general meeting of the shareholders, to borrow any sum they may think fit on mortgage or other security on their land or other property, or on bond or debentures; and as at the general meeting of shareholders, held on the 21st February last, the Board were authorised to issue debentures to the extent of 100,000 *l.*, for three, five, and seven years, to bear interest at the rate of 5 per cent., we see no difficulty in their raising any portion of that amount upon the debentures of the company; but it would seem that the period of the loan should be in accordance with the terms of the resolution, and be therefore either for three, five, or seven years certain. Probably, under these circumstances, the Secretary of State for India would not object to allow the intended loan to be for three years certain.

Of course the conditions upon which the loan is to be made must be the subject of a separate agreement, under the seal of the Company.

We are, &c.

Major General C. C. Johnston. (signed) *Maynard, Son, & Co.*

No. 12.

Sir,

India Office, 26 April 1866.

I am directed by the Secretary of State for India to acknowledge receipt of your letter of the 27th ultimo, and to acquaint you, in reply, that, under the circumstances represented, and on the distinct understanding that no further sum beyond the 400,000 *l.* stated to be required to complete the line shall be raised, except by call on the shareholders, without the previous assent of the Secretary of State in Council, he consents to lend to the Indian Branch Railway Company a sum of 60,000 *l.* for three instead of two years, as previously proposed.

Upon debentures to the amount of the loan being deposited with the Accountant General of this Department, the money will be paid by that officer to the Railway Company.

I am, &c.

Major General C. C. Johnston. (signed) *J. Stansfeld.*

No. 13.

(No. 224.)

Indian Branch Railway Company, Limited,
101, Cannon-street, London, E.C.,
1 June 1866.

Sir,

By desire of the Directors of the Indian Branch Railway Company, Limited, I have the honour to report, for the information of the Secretary of State for India in Council, a most unexpected difficulty in which the Company are placed, owing to the sudden closing of the Consolidated Bank, and the consequent temporary locking up of the Company's funds which are in deposit there, to the extent of 43,615 *l.*

2. Prior to obtaining the loan of 60,000 *l.* from the Secretary of State, it was explained to Mr. Juland Danvers, that of the first series* of debentures, 72,000 *l.* had been placed for five years, bearing interest at 5 per cent. per annum, and that the Company had obtained a loan from the Consolidated Bank of 52,000 *l.* of which 30,000 *l.* were to meet the expenditure in India up to probably the end of this year; and that of the 52,000 *l.*, 22,000 *l.* were to be repaid to the bank in July next, 10,000 *l.* in October, and the remaining 20,000 *l.* by the middle of December, so that at the end of the year, supposing the loan of 60,000 *l.* to have been obtained from the Secretary of State, and that no further debentures were placed, the account would have stood as follows:

*100,000 *l.*

	£.	
	100,000	first series of debentures.
Deduct - -	72,000	placed for five years.
	28,000	
Add - - -	100,000	second series of debentures.
	128,000	
Deduct - -	60,000	or loan from Secretary of State for India.
Balance - -	68,000	of which it was pointed out that 20,000 *l.* would be required to be placed before August, and the remaining before October next.

3. The

3. The liabilities of the Company were also given as follows:

£.
13,197 to the end of April.
14,000 in May.
11,000 in June.
23,000 in July.
17,000 in August, September, and October.
46,000 in November and December.
Total - £. 124,697 being 3,303 *l.* less than the debentures at that time remaining to be placed.

4. Of the loan obtained from the Consolidated Bank, 22,000 *l.* have been expended in this country, and 12,000 *l.* were taken up to meet the expenditure in India up to the 21st April. Since then, in all probability, some 2,000 *l.* more will have been drawn, so that the balance of the deposit with the Consolidated Bank, and which will of course be paid eventually, is not likely to exceed 7,615 *l.*

5. The inconvenience, however, is that the Company have at present no funds whatever, either to meet current expenses in this country or in India, and with the prevailing panic and distrust in the money market, the Directors see that it would be utterly hopeless to attempt placing the balance of their debentures, and equally hopeless to make a call.

6. Accompanying this letter is a statement showing, as accurately as they can be ascertained, the liabilities of the Company to the end of the year, and unless the debentures can be placed to meet those liabilities, there will be no alternative but to immediately suspend all operations, a serious step to contemplate, and one, should it happen, to be deeply regretted, seeing that the Lucknow and Cawnpore line, which is the key to an extensive system of economical railways in India, is so near completion. Under the extreme emergency of the case, therefore, the Directors are constrained to solicit further assistance from the Secretary of State, and should he be pleased to take a liberal view of the position of the Company's affairs, and advance on the same terms as before a further sum of 68,000 *l.*, the Directors would propose to draw the money from the Treasury from time to time to meet demands as they arise, placing on each occasion their debentures to cover the amount drawn; and they would suggest that of the 68,000 *l.* the Government of India should be authorised to hold at the disposal of the Company's Agent there a sum of 18,000 *l.*, to be similarly drawn for as required.

I have, &c.
(signed) *C. C. Johnston*, Managing Director,
Indian Branch Railway Company, Limited.

The Under Secretary of State for India.

Enclosure 1 to No. 13.

INDIAN BRANCH RAILWAY COMPANY, LIMITED.

STATEMENT A.—Prospective Estimate of Expenditure to 31st December 1866.

IN ENGLAND:	£. s. d.	£. s. d.
On Materials Account:		
Carriages and waggons - - - - - - - - -	30,400 – –	
Less:		
Debentures - - - - - - - - - - -	12,000 – –	
		18,400 – –
Points and crossings, tools, telegraph posts, lamps, crabs, royalty on fish joints, &c. - - - - - - - - - -	- -	2,314 – 7
Freight and insurance, and carriage - - - - - -	- -	1,473 4 7
Debentures and Interest:		22,187 5 2
Debentures (Sharp, Stewart, & Co.), due 1st October 1866, with interest - - - - - - - - - - -	4,725 – –	
Debentures (Ebbw Vale Company), due 1st November 1866, with interest - - - - - - - - - -	9,450 – –	
Interest on debentures, due 1st July 1866 - - - - -	160 – –	
Ditto - ditto - 15th October 1866 - - - -	1,640 – –	
Ditto on shares, due 30th June 1866 - - - - -	5,200 – –	
Ditto - ditto - 31st December 1866 - - - -	5,200 – –	
		26,375 – –
Establishment charges - - - - - - - - - -	- -	1,520 – –
TOTAL to 31st December 1866 - - - - -	- - £.	50,082 5 2
Required for 1st January 1867:		
Debentures (Frith & Son's) with interest - - - - -	12,600 – –	
Interest on Debentures, due 1st January 1867 - - - -	160 – –	
		12,760 – –
TOTAL - - - £.		62,842 5 2

Enclosure 2 to No. 13.

INDIAN BRANCH RAILWAY COMPANY, LIMITED.

STATEMENT B.—Assets and Liabilities, 1st June 1866.

Dr. *Cr.*

LIABILITIES.	£. s. d.	£. s. d.	ASSETS.	£. s. d.	£. s. d.
Loan obtained from Consolidated Bank, viz.:			Loan granted 30th April 1866, by the Secretary of State for India, on the deposit of 60,000 *l.* debentures -	- -	60,000 - -
Bills drawn in England, to be repaid 4th August 1866 - -	22,000 - -		Less:		
Negotiated in India under their Credits, to be repaid on or before 31st December 1866 -	12,000 - -		Amount expended to date - -	- -	16,384 - 7
		34,000 - -	Balance remaining to the credit of the Company on the closing of the Consolidated Bank (28th May 1866) -	- -	43,615 19 5
Estimated Expenditure in England, from present date to 31st December 1866, as per Detailed Statement A.	- -	62,842 5 2	Debentures still on hand, requiring to be placed - - - - - -	- -	68,000 - -
Estimated Expenditure in India, from 1st January to 31st December 1866, as follows:—			Mr. Wilson, for amount due for calls on his shares, and balance of his personal account, to be paid by 31st December 1866 - - - -	- -	3,512 6 1
Landing and carriage of material	18,000 - -		Government of India, for amounts to be returned to the Company:		
Laying permanent way - -	6,000 - -		For Customs duty - - -	1,890 11 7	
Pay of Staff, and general expenditure - - - - - -	14,000 - -		„ Caution money - - -	1,000 - -	
	38,000 - -				2,890 11 7
Less:					
Amounts remitted to and received in India, from 1st January to 21st April 1866 - - - £. 8,000					
Consolidated Bank Credits, negotiated to same date as above - - - 12,000					
	20,000 - -				
		18,000 - -			
TOTAL Liabilities - - - £.		114,842 5 2	TOTAL Assets - - - £.		118,018 17 1

	£. s. d.
Total Assets - - - - - -	118,018 17 1
„ Liabilities - - - - - -	114,842 5 2
Surplus - - - £.	3,176 11 11

(signed) *C. C. Johnston*, Managing Director,
Indian Branch Railway Company, Limited.

No. 14.

Sir, India Office, 7 June 1866.

I AM directed to acknowledge receipt of your letter of the 1st instant representing that the Indian Branch Railway Company are placed in unexpected difficulty, in consequence of the sudden closing of the bank in which the Company's funds were deposited, and requesting a further loan of 68,000 *l.*, in order to relieve the Company from the necessity of suspending operations.

In reply, I am directed to state that, although regretting the embarrassment caused to the Company by the closing of the Consolidated Bank, Lord de Grey is under the necessity of declining to afford them any further pecuniary assistance.

I am, &c.

Major General C. C. Johnston. (signed) *J. Stansfeld.*

Part II.

Correspondence between the Secretary of State for India and the Great Indian Peninsula Extension Railway Company.

No. 1.

(No. 5 of 1864.)

The Great Indian Peninsula Extension Railway Company (Limited),
Offices, No. 3, New Broad-street, E.C.,
London, 14 November 1864.

Sir,

The Directors of the Great Indian Peninsula Extension Railway Company, Limited, having carefully considered your letter of the 24th September last,* desire me to state that until they know the exact conditions under which the Government will consent to the line being constructed, they are quite unable to decide upon what terms it will be possible to raise the capital for the line from Indore to the Great Indian Peninsula Railway. They think it, therefore, necessary to endeavour to settle with the Secretary of State such practicable conditions for the undertaking as will enable them to form a judgment when the time comes for raising the capital, and it is the more desirable to adopt this course, as the Government of India has proposed that the arrangements for constructing the important branch to Hyderabad shall be similar to those for the railway to Indore.

2. To enable the Secretary of State to judge what the Directors consider practicable conditions, they will first point out what they regard as the impracticable character of those suggested by the Government of India.

3. The Government is to determine the direction of the railway, and how it is to be made.

4. The Government is to alter the railway as it pleases.

5. The Government is to confiscate the railway whenever it thinks the undertaking is not being properly carried on.

6. The Government is to appropriate the railway to itself for nothing at the end of 99 years.

7. The Government is to have the mail service carried on free of expense for 99 years, the value of this service being estimated at 5,000 *l.* to 7,000 *l.* a year for the first 10 years, and 7,000 *l.* to 10,000 *l.* a year for the next 10 years, with a future increase of indefinite amount.

8. In return for this, the Government is to pay the sum of 12,000 *l.* a year for 20 years.

9. The Government is further to provide the land for the undertaking free of expense to the Company, but as the land will be for the most part given by native Princes, and will not in other respects really cost the Government anything, it may be regarded as no charge upon the Government, but as an arrangement for administrative convenience.

10. The Directors, however, are of opinion that unless the amount of subsidy is so considerable as to be an ample cover for all the proposed, present and prospective, loss and service, under these conditions, they must be entirely changed.

11. In the first place, the Directors consider the proposed subsidy of 12,000 *l.* a year for 20 years as far too small to justify the Government imposing any conditions on the undertaking which might not be equally well demanded for the public protection, if no subsidy were granted.

12. As the course which has been pursued by the Government and Parliament of this country, in regard to railway companies, has been found quite sufficient for the public interest, the Directors would suggest that it be adopted as the basis of their proceedings in India.

13. The Company should, in the first place, settle the nature of the undertaking with the Government, in the same manner as a Company obtains the approval of Parliament to the construction of a railway, *i.e.*, the plan and section of the line for a single line of railway, with sufficient powers of deviation. The maximum rates of fares should be settled in like manner, subject to reduction on earning a dividend of 10 per cent.

14. The

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* Copy forwarded to the Government of India with Despatch, No. 57, dated 26th September 1864.

14. The Company should then enjoy the same unfettered liberty in constructing, maintaining, and working the railway, which any English Company enjoys, being responsible for its acts in a court of justice, and not dependent on the executive Government.

15. If the Government desires that the railway should be surrendered to them in any event, the surrender should be on the same terms and under the same circumstances and conditions as the Great Indian Peninsula Railway Company is to surrender its lines to the Government. These conditions of surrender are:—

1st. If the Government consider that the Company has not duly constructed, maintained, or worked the railway, the Government can take possession on repaying the Company the capital expended.

2nd. The Government may at the end of certain periods appropriate the railway to itself on repaying the capital at the average market price of the shares for the three years preceding.

3rd. The Government is to appropriate the railway to itself for nothing at the end of 99 years, but the Company has the right of previously surrendering the railway, and receiving from the Government the capital expended.

16. There might be a further condition for giving the option to the Government or the Company of surrendering this line whenever the main lines of the Great Indian Peninsula Railway Company are surrendered to Government.

17. The Government to pay a subsidy, and to provide the land for the railway and for its construction free of charge to the Company. The Government to pay for all services rendered by the Railway Company to the Government at the established rates whenever the subsidy ceases.

18. If the Secretary of State is prepared to adopt these principles, the Directors will have much pleasure in submitting a draft of the conditions to carry them into effect, but they venture to suggest that until some practical basis is arrived at, it would only encumber the negotiation to proceed further with the attempt to settle the elaborate details of the document embracing the legal terms of the arrangement.

19. With regard to the proposal to grant 2,000 *l.* a year for extra works in addition to the 100 *l.* a year per mile, the Directors beg to point out that this proceeds upon the basis of an arrangement proposed by the Government of India in their compilation published for the information of the public, that for every 10,000 *l.* to be spent on bridges and works of magnitude, to overcome extraordinary difficulties there should be paid an additional subsidy of 100 *l.* a year. The works on the proposed line would be a bridge over the Nerbudda and the ascent of a range of ghâts, the extra cost of which cannot be estimated at less than 300,000 *l.*, but the Directors would suggest that if the principle of the Government of India is adopted, an approximate estimate of this extra cost could be readily made by some Government Engineer in Bombay, and the Chief Engineer of the Great Indian Peninsula Railway Company, who are conversant with the cost of similar works on the Great Indian Peninsula Railway lines.

20. The Directors are of opinion that if the Government desires to exercise any control over the Company's operations, it can only do so upon the condition of indemnifying the Company against all loss by guaranteeing a minimum dividend. It would be quite impossible for the Company to be subject to the loss which may be entailed by Government interference, and then to be left to litigation with the Government to ascertain the amount of damage. That this is no mere abstract question may be gathered from the fact that the loss arising from the control of Government over guaranteed lines is variously estimated up to one-third of the whole outlay on those undertakings, and it is within the knowledge of the Directors, that in the case of the Great Indian Peninsula Railway it has been very considerable.

21. The Directors are lastly of opinion that the change of the direction of the proposed line, suggested by the Government of India, would so materially diminish the commercial value of the line that it would be necessary for the Government to indemnify the Company by an additional subsidy, which may be estimated at 10,000 *l.* a year.

I am, &c.

The Under Secretary of State for India. (signed) *Thos. R. Watt.*

No. 2.

Sir, India Office, 24 August 1865.

I am directed by the Secretary of State for India to acquaint you, that the Government of India has reported that Maharajah Holkar has consented to the remission of transit dues on the through traffic of the proposed branch railway to Indore, and at the same time has declared his engagement with Mr. Ayrton to be, in consequence, at an end.

I am, &c.

T. R. Watt, Esq., Secretary Great Indian Peninsula Extension Railway Company, Limited. (signed) *J. Cosmo Melvill.*

No. 3.

No. 3.

(No. 6 of 1865.)

The Great Indian Peninsula Extension
Railway Company (Limited),
Offices, No. 3, New Broad-street, E.C.,
London, 30 September 1865.

Sir,

I AM desired by the Directors of the Great Indian Peninsula Extension Railway Company (Limited), to acknowledge the receipt of your letter, dated the 24th August ultimo, informing them that Maharajah Holkar has consented "to the remission of transit dues on the through traffic of the proposed branch railway to Indore, and at the same time has declared his engagement with Mr. Ayrton to be, in consequence, at an end."

2. The Directors submit the following observations thereon for the consideration of Sir Charles Wood.

3. The Secretary of State having, by a letter dated the 3rd July 1863, intimated that he had referred the subject of this extension railway to the Government of India to settle the terms on which it should be constructed, Mr. Ayrton, at the request of the Directors, and with the recognition of the Secretary of State, proceeded to India, for that and other purposes, in the month of August 1863. On his arrival in Bombay he addressed a letter to Lord Elgin, the Governor General, of which a copy is forwarded herewith, suggesting the expediency of interesting his Highness the Maharajah Holkar in the undertaking. To this Mr. Ayrton received the reply, of which a copy is also forwarded, expressing concurrence in these views, and wishing Mr. Ayrton to meet him on his return from the expedition, which unfortunately terminated with his Lordship's death.

4. Mr. Ayrton, in consequence, proceeded to Calcutta to see Sir William Denison, the provisional Governor General, and on his concurring in Lord Elgin's view, that it was desirable that the Company should enlist the support of the Maharajah in the undertaking, Mr. Ayrton, with the sanction of the Government of India, went to Indore, and effected the arrangement with the Maharajah to which your letter refers.*

* Letter of Secretary of Government in the Foreign Department, 4 January 1864.

5. Sir John Lawrence having in the meantime been appointed Governor General, Mr. Ayrton returned to Calcutta, where he learned with great regret that the Governor General entirely disapproved of the liberal views of his predecessors, and proposed terms which in effect would have annulled the arrangement with the Maharajah as the basis of further negotiations.

6. Mr. Ayrton very properly declined to accede to this proposal, which he regarded as an entire breach of faith towards the Company, considering the Government as much bound by the Maharajah's arrangement, entered into in the manner prescribed by them, as if they had themselves been parties to it.

7. The Governor General then withdrew that proposal, and the Government of India proceeded with the negotiations on the basis of the Maharajah's concession, and the matter being referred to the Secretary of State to settle the terms of the contract with the Government, under which the railway was to be constructed, I have had the honour of communicating the views of the Directors on the subject to the Secretary of State, in my letters of the 12th September and 14th of November 1864; but the Directors regret to observe that up to the present time they have not received any reply to the letter of the 14th November 1864.

8. It now appears that the Government of India have been, in the meantime, preferring demands upon the Maharajah, which he considers so onerous that in order to escape from them, he has intimated his determination to withdraw from the engagement entered into by him with the Company for the construction of the line, notwithstanding, as the Directors have reason to believe, his Highness would otherwise be most willing and anxious to adhere to his arrangement and see it carried into effect, and it is very frankly and truly admitted in your letter that the withdrawal of his Highness was the consequence of these demands of the Government of India, a consequence which might have been foreseen, and therefore avoided.

9. It is thus apparent that by these means the result was obtained indirectly which the Government of India failed to obtain directly from Mr. Ayrton, and subsequently waived, viz., the surrender by Mr. Ayrton of his Highness's engagement with the Company. It is obvious that the negotiations of the Government of India at present have no other result, for, as the cession of transit dues is only to take effect on the construction of the railway, and the means of constructing the railway are at the same time withdrawn, the railway will not be made, and the cession will not take effect.

10. If, however, the railway had been constructed without the cession of transit dues, the Maharajah having to bear any loss which might have resulted from these dues impeding the use of the railway, it is probable he would, for his own relief, have seen the advantages of abandoning them, and then the railway would have been constructed, and the transit dues, if injurious, abolished; but the course taken by the Government of India has merely

obstructed, if not frustrated, the construction of one of the most important lines of railway which could be devised for opening the internal commerce of India, by bringing a completely land-locked country of many thousand square miles in direct, cheap, and speedy communication with a great emporium of trade, and the best harbour of India.

11. The Directors, therefore, submit for the consideration of Sir Charles Wood that, under these circumstances, and in order to maintain good faith with the Company, no less than to promote the public interest, the Government should now take upon itself the subvention promised by the Maharajah Holkar, of which the Company has been deprived by the measures adopted by the Government of India, or that the Government of India should give such other guarantee as will enable the Company to raise the requisite capital for the construction of this important line of railway, and they trust that, when the Secretary of State may be pleased to direct a reply to my letter of the 14th November 1864, he will be prepared to extend the proposed subvention of the Government accordingly.

I am, &c.
(signed) *Thos. R. Watt.*

The Under Secretary of State for India.

Enclosure 1 to No. 3.

My Lord, Bombay, 21 September 1863.

HAVING been deputed by my Co-Directors of the Great Indian Peninsula Railway to come to Bombay during the Parliamentary recess to endeavour to improve the administration of their affairs here, and to take whatever steps may be requisite regarding the proposed extension line to Indore, I trust your Lordship will permit me to urge upon your attention that important project.

Your Lordship will already have received a copy of the letter of the Secretary of State for India to the Extension Company of the 3rd July last, stating that if the Government of India should think fit to grant, for the construction of the extension line, the terms therein mentioned, he would authorise them to do so without further reference to England, and I am informed that the Government of Bombay entirely approve of the projected line, which, I trust, will also meet your Lordship's approbation.

Lest your Lordship should feel any difficulty respecting the future harmonious working between the guaranteed and extension Companies, I beg to suggest that all difficulty may be obviated by treating the extension on the footing on which similar lines are treated by the chief railway companies in England. The Great Indian Peninsula Railway Company might enter into an engagement with the Extension Company to work the extension line, when delivered to them in proper order, upon the simple terms of charging 50 per cent. on the gross earnings for working expenses; the Government would thus have the advantage, through their *ex-officio* director, of seeing what was done without the embarrassment of the guarantee. It may be said the present working expenses are above 50 per cent., but this arises from the broken and undeveloped state of the line and other exceptional causes, and it may be confidently asserted that as soon as they are removed the working expenses will be under 50 per cent. It need only be mentioned that in the heaviest item of expenditure in manual labour wages are not more that one-fifth of the amount payable in England, and though the cost for European officers and stores is higher, the number and extent of these, as the natives improve in training, will be diminished. Both Companies will be ready to adopt this simple arrangement if it should suit your Lordship's approbation. The importance of this line seems greatly increased by the proposed change of the seat of the Supreme Government from Calcutta.

The country between the Thull Ghaut and the Chandore Hills presents some unrivalled situations for climate, where the Supreme Government would be placed on the principal channel of communication between the chief part of India and Suez, both for correspondence and for officers coming to India to take up appointments. It can hardly be doubted that when the through lines are complete, people will no more think of going from Calcutta to Suez by sea than they now think of going by sea from London to New York; and this concentration of steam traffic will at the same time lead to a great economy in the present postal arrangements. I regret, however, to be compelled to observe that the terms proposed to be granted are not deemed sufficiently liberal in the English market, and difficulties may therefore be experienced in obtaining the capital on that footing. It has occurred to me that this difficulty may be overcome in a manner which will not entail further responsibilities on the Government. As the extension line goes to Holkar's capital, an appeal might be made to him to take a certain amount of capital, on which the dividend should be deferred until the ordinary shareholders receive 5 per cent., on the footing of some Colonial subsidies, with which your Lordship is no doubt acquainted.

I trust your Lordship would regard it as a noble advance of policy, if native princes can be induced to spend their resources for the public good, and make themselves worthy of the protection they receive, instead of leaving them to lavish their treasures in vice and folly, and then removing them for their misconduct. I am told that native princes view any application from the British Government for money with great jealousy, as being, from their position, a dangerous precedent; but I would submit to your Lordship, if you approve of the principle, that a direct appeal might be made to Holkar by the Company, urging upon

upon him that, as the Government have done so much, he might well do the rest to bring the line to his own capital, and I should be ready to proceed to Indore, and take whatever course the Resident might indicate to effect this object.

I may add that, as the lines now in course of construction are being rapidly completed, it would be a great economy to secure the services of the engineers and workmen experienced in Indian work for the new line. Should your Lordship desire any further explanation, I shall be happy to wait upon you at any place you may appoint, being fully empowered to act for the Extension Company; but as I shall be compelled to return to England about the time Parliament meets, I beg you will excuse my soliciting an early reply.

I have, &c.
(signed) *Acton J. Ayrton.*

The Right Hon. Lord Elgin.

Enclosure 2 to No. 3.

Dear Sir, Simla, 18 October 1863.

The Governor General having left Simla before your letter reached him, some unavoidable delay has taken place in replying to it, which I now do under instructions received from his Excellency.

In the first place, I am to say, that the Governor General is likely to be at Sealkote, where he will join his camp, in the first week in November; that he will march up to Peshawur and back to Lahore, which last place he may be expected to reach shortly after the 15th January, and where he will remain for six weeks or two months. His Excellency would be glad to see you, either in his camp or at Lahore, if you could make it convenient to come up to meet him. As the camp will be on the main road most of the time, and never far from it, you would find no difficulty in getting up to it, and arrangements could, no doubt, be made to put you up in the camp while you were with it. I may add my own opinion that, for many reasons, it would conduce to a satisfactory conclusion of your journey to India, if you could manage to see Lord Elgin and discuss what has to be settled with him and myself in person.

As to the more specific points discussed in your letter to the Governor General, his Excellency wishes me to say as follows:

With regard to the proposed line from the Great Indian Peninsula Railway to Indore, the Government of India are disposed to view it favourably, and will be glad to see it taken up by a competent Company.

As to the extent of Government aid to be looked for, a subsidy for 20 years, at 100 *l.* per mile per annum, for a 5-ft. 6-in. gauge line, is the basis of the offers that have been made to other unguaranteed Companies, and this will be extended to the proposed line to Indore. In the case of the Oudh and Rohilkund lines about to be undertaken by the Indian Branch Railway Company, where costly bridges will be required at certain points, a further allowance has been made to aid in their construction. In the event of your Company undertaking the Indore line, the Government of India would, in like manner, take into fair consideration any claims for additional assistance, founded on proof of its being necessary to execute works of exceptional difficulty at expense. The passage of the Nerbudda, or the ascent of the Ghâts, might give reasonable grounds for such extra aid, but the information before the Governor General as to the character of the country, and the probable cost of the works, is not sufficient to enable him to say more on this point at present.

With reference to your proposed application to his Highness Holkar to take shares on certain terms, the Government cannot in any way undertake to bring its influence to bear for such a purpose, but if the Company can induce him to do so, by pointing out the advantage the railway will be to his State, well and good.

I may add, that of course the assent of all the native states passed through must be obtained, as a preliminary, to the construction of this or any other similarly situated railway; and that the necessary steps for arranging for the cession of the land, on the best terms practicable, are now being taken, or will shortly be, under the orders of the Government in the Foreign Department. No difficulty need be anticipated on this score, however.

Lastly, as to your proposal that the new line might be worked by the Great Indian Peninsula Railway Company, at a fixed rate of 50 per cent. on the gross receipts, it seems to the Governor General, at first sight, to be open to serious objection, but it may deserve further consideration, and can be discussed more fully if the negotiations with your Company for the construction of this line are brought to a practical conclusion.

Believe me, &c.
A. Ayrton, Esq., M.P., Bombay. (signed) *R. Strachey.*

No. 4.

(No. 1 of 1866.)

The Great Indian Peninsula Extension
Railway Company (Limited),
Offices, No. 3, New Broad-street, E.C.,
London, 28 February 1866.

Sir,

I AM desired by the Directors of the Great Indian Peninsula Extension Railway Company (Limited), to call the attention of the Secretary of State for India to the report, dated Nagpore, 19th June 1865, of Lieutenant Oldham, R.E., to the Consulting Engineer for Railways, Bombay, with an extract from which they have been furnished, as far as it relates to the proposed Indore branch line (*see* pp. 30 to 32 of the Report).

2. I am instructed to state that the Directors trust that if any further evidence were wanting of the value and importance of the Indore branch line, this report will have due weight with the Government as the independent testimony of one of their own officers, and that they hope to be soon favoured with a satisfactory reply to my letter upon the subject to your address, No. 6, of the 30th September last.

I am, &c.
(signed) *Thos. R. Watt.*

The Under Secretary of State
for India.

No. 5.

Sir,

India Office, 12 April 1866.

I AM directed by the Secretary of State for India to acknowledge receipt of your letters of the 30th September and 28th February last, in which the Directors of the Great Indian Peninsula Extension Railway Company (Limited) represent that, owing to measures adopted by the Government of India, the Company have been deprived of the subvention promised them by the Maharajah Holkar, and submit that Government ought, consequently, in order to maintain good faith with the Company, to take upon itself that subvention, or give such guarantee as may enable the Company to raise the capital they require.

Lord De Grey much regrets that the Directors should, throughout the earlier of these letters, have permitted language to be used involving a charge of bad faith against the Government of India, for which they have produced no evidence, and which is not borne out by the correspondence transmitted to this department by that Government, and he declines to comply with the requests contained in your letter of the 30th September last, that the Indian Government should take upon itself the subvention promised by the Maharajah Holkar, or give such other guarantee as will enable the Great Indian Peninsula Extension Railway Company, Limited, to raise the capital necessary for the construction of the line to Indore.

I am, &c.
(signed) *J. Stansfeld.*

T. R. Watt, Esq.

PART III.

CORRESPONDENCE between the Secretary of State for India and the Great Indian Peninsula Railway Company.

No. 1.

Sir,

India Office, 6 February 1865.

I AM directed by the Secretary of State for India to acquaint you, for the information of the Directors of the Great Indian Peninsula Railway Company, that the Government of Bombay have, in a Despatch recently received, strongly urged upon him the adoption of arrangements for the construction of five branches as feeders to the Great Indian Peninsula Railway Company's trunk lines. A list of the proposed branches is given in the margin, and an outline map is transmitted herewith, on which their positions are marked.

1. Barsee-road to Barsee.
2. Budwaira to Oomrawuttee.
3. Julgaum to Kamgaum.
4. Akola to Akote.
5. Mortezapoor to Kariarja.

The Bombay Government report, that some of the leading firms and capitalists of Bombay are prepared to organise a Company for the construction of these branches on terms similar to those granted to the Indian Branch Railway Company with respect to their undertakings in Bengal, Oude, and Rohilcund. As it is probable, however, that the working by a separate Company of a number of short unconnected branches would be attended with inconvenience, Sir Charles Wood is desirous, before taking any other steps in the matter, of ascertaining whether the Great Indian Peninsula Railway Company are willing to undertake the construction of the branches referred to, and, if so, on what terms, and to request that the question may receive the early attention of the Directors.

I am, &c.
(signed) *Dufferin.*

T. R. Watt, Esq.

No. 2.

(No. 31 of 1865.)

Great Indian Peninsula Railway Company,
Offices, No. 3, New Broad-street, E.C.,
London, 13 February 1865.

Sir,

HAVING submitted Lord Dufferin's letter of the 6th instant to the Board, I am instructed to state in reply that they are unable to recommend to the shareholders the construction of the branch lines suggested; but at the same time, in order to avoid any inconvenience of the character referred to in that letter, they will be prepared to enter into an arrangement with any parties who may construct them, for the economic and most advantageous use of them to the promoters. If this proposition should be entertained, the Board will be ready to submit the details of such an arrangement, based upon those usually entered into by leading Companies in this country with branch lines, it being, however, distinctly understood that the profits of this Company's lines are not made to compensate any losses on the branch lines.

I am, &c.
(signed) *Thos. R. Watt.*

The Under Secretary of State
for India.

No. 3.

India Office, 23 February 1865.

Sir,

I AM directed by the Secretary of State for India in Council to acknowledge the receipt of your letter of the 13th instant, No. 31, and to acquaint you in reply, that he would be glad to be furnished with particulars of the arrangement into which, as therein stated, the Directors of the Great Indian Peninsula Railway Company would be prepared to enter for the economical and mutually advantageous working of branch railways constructed by other parties as feeders to their trunk lines.

I am, &c.
(signed) *Dufferin.*

T. R. Watt, Esq.

No. 4.

(No. 51 of 1864.)

Great Indian Peninsula Railway Company,
Offices, No. 3, New Broad-street, E.C.,
London, 13 March 1865.

Sir,

I AM instructed by the Board of Directors to acknowledge the receipt of Lord Dufferin's letter of the 23rd ultimo, and to forward in reply the accompanying memorandum of suggested terms for the working and maintenance by the Great Indian Peninsula Railway Company of branch railways to be constructed by other Companies as feeders to the main line.

I am, &c.
(signed) *Thos. R. Watt.*

The Under Secretary of State
for India.

Enclosure to No. 4.

The Great Indian Peninsula Railway Company.

MEMORANDUM of suggested Terms for the Working and Maintenance by the Great Indian Peninsula Railway Company of Branch Railways to be constructed by other Companies as Feeders to the Main Line.

1. THE agreement between the Great Indian Peninsula Railway Company and the Branch Railway Company to be made for so much of the term of 99 years unexpired as the Great Indian Peninsula Railway Company has remaining in the Great Indian Peninsula Railway, but with the right reserved to either Company to require a revision at the end of every three years, if they think proper, of the division of the net receipts provided for in Article 15, hereinafter stated, subject, in case of disagreement, to arbitration, as provided for in Article 19.

2. The branch railway to be constructed of the same gauge, and with a permanent way of a like quality and character to that of the Great Indian Peninsula Railway.

3. The Branch Railway Company to complete, to the satisfaction of the Chief Resident Engineer of the Great Indian Peninsula Railway for the time being, the branch railway, and the junction of it with the Great Indian Peninsula Railway at ————, together with

with the necessary junction signals, station signals, stations, including satisfactory dwelling accommodation for the officers and servants to be employed in working the traffic, approach roads, gate lodges, residences for gatekeepers at such level crossings as may be necessary; and all such sidings, with turn-tables both for engines and carriages, fixed weighing machines, and lifting cranes, tanks, pumps, pumping machinery, and water cranes, &c., as may be agreed to by the Great Indian Peninsula Railway Company as requisite for the working of the traffic; also a line of telegraph from station to station, upon the same principle as that in use upon the Great Indian Peninsula Railway, with the proper batteries and other appurtenances.

4. If additional accommodation be found necessary from time to time for the traffic upon the branch railway, the Branch Railway Company to provide the same at their own cost, upon request by the Great Indian Peninsula Railway Company; but should difference of opinion arise between the Companies as to the necessity for, or the character and extent of, the additional accommodation demanded, such difference to be a matter to be determined by the committee in the manner hereinafter provided for in Article 14.

5. The Great Indian Peninsula Railway Company, from the day on which their Chief Resident Engineer shall certify the branch railway to be, in accordance with Article 3 ready to be opened for public traffic, at their own expense efficiently and exclusively to work the "local" and "through" traffic on the branch railway, and indemnify the Branch Railway Company against all liabilities, loss, costs, charges, damages, and expenses, claims, and demands of every kind in any manner connected with or arising out of such working, provided the same are not attributable in any way to the act or default of the Branch Railway Company in not duly performing their part of the contract.

6. The Great Indian Peninsula Railway Company to provide all necessary engines, carriages, trucks, and waggons, and all other plant, stores, and materials, and to appoint and remunerate all necessary clerks, porters, gatekeepers, and other officers and servants required for the efficient working of the branch railway, and to duly and efficiently convey all passengers, goods, coal, stone, cattle, and other animals and materials thereon.

7. The Great Indian Peninsula Railway Company to fix and determine the number of trains to be run from time to time, the times for starting the trains, and at which stations the trains shall stop, and to receive all the tolls and charges to be demanded and received in respect of the branch railway.

8. The Branch Railway Company, during the continuance of the term of the agreement, not to be carriers upon or over their railway, nor to permit or suffer any Company or person other than the Great Indian Peninsula Railway Company to act as carriers upon, or to pass over or along, the branch railway with engines or carriages of any description, or to use the stations or works connected with the branch railway or appurtenances thereto.

9. The Branch Railway Company, for a period of 12 calendar months from and after the date when their railway shall be opened for public traffic, to keep and maintain in good repair and condition and fit for public traffic the branch railway and the appurtenances thereof; and from and after the expiration of the said period of 12 months, the Great Indian Peninsula Railway Company, during the remainder of the term of the agreement, to effectually and sufficiently maintain and keep in repair the works of the branch railway and appurtenances, and at the expiration of the term, the Great Indian Peninsula Railway Company to deliver up the branch railway, stations, and other works and appurtenances, in as good a state of repair and efficiency as they received them, reasonable wear and tear only excepted.

10. The branch railway to bear and pay all compensation, damages, costs, and expenses, payable to any person or Company, or incurred by the Great Indian Peninsula Railway Company in respect of any accident occurring within the period of the first 12 months referred to in Article 9, occasioned by any defect in the original construction of the branch railway or the works and buildings connected therewith, or occasioned or occurring by the act, neglect, or default of the Branch Railway Company, or of any contractors or persons employed by them.

11. The traffic on the branch railway to be divided into two classes, viz., "Through Traffic" and "Local Traffic."

12. Local traffic to include all traffic commencing at and finishing upon any part of the branch railway, including the junction station of the Great Indian Peninsula Railway Company with the branch railway, which last-mentioned place for this purpose to be considered as the terminus of the branch railway. Through traffic to include all other traffic.

13. The rates and charges for through traffic to be from time to time fixed by the Great Indian Peninsula Railway Company, whether on the branch railway or the Great Indian Peninsula Railway.

14. The rates and charges to be made for local traffic to be from time to time, on the request of either Company, fixed and determined by a Committee, to consist of the Agent and the Traffic Manager of the Great Indian Peninsula Railway Company, and two persons, either Directors or Officers of the Branch Railway Company, which committee, in case they cannot

cannot agree upon any of the matters to be determined by them, to have power by writing under their hands to call in and appoint an umpire, to whom the matters in difference shall be referred, and whose decision shall be conclusive upon the respective Companies; but in case the Committee do not agree in the selection of an umpire, the matters in difference to be referred to an arbitrator to be appointed by the Governor of Bombay, whose decision shall be final.

15. The Great Indian Peninsula Railway Company to keep an account of the gross receipts derived from the traffic of the branch railway, distinguishing the various classes of receipt, and which receipts to be divided between the two Companies in manner following:

From the gross receipts for local traffic, there shall be first deducted and retained by the Great Indian Peninsula Railway Company all sums "paid out" on goods or other traffic; next the terminal charges; and of the residue of receipts, half shall belong to the Great Indian Peninsula Railway Company, and half to the Branch Railway Company.

From the gross receipts for through traffic, there shall be first deducted and retained by the Great Indian Peninsula Railway Company all sums paid out on goods or other traffic, next all the terminal charges; and of the mileage proportion of the residue due to any distance between the junction with the main line of the Great Indian Peninsula Railway Company, and the termination of or any intermediate station on the branch railway, half shall belong to the Great Indian Peninsula Railway Company, and half to the Branch Railway Company.

16. The Great Indian Peninsula Railway Company to deliver to the Branch Railway Company, on or before the 15th day of every month next but one after that in which the traffic is carried, a full and true account of all the receipts connected with the branch railway during such last-mentioned month, and the Great Indian Peninsula Railway Company, on or about the 21st day of the month next but one after that in which the traffic is carried, to pay to the Branch Railway Company the share of the receipts payable to them for the said last-mentioned month.

17. The Branch Railway Company to have power to appoint, at their own expense, from time to time, an Accountant to inspect the accounts of the Great Indian Peninsula Railway Company touching the traffic of the branch railway, such Accountant to give three days' previous notice of his intention to proceed at reasonable times of the day, and thereupon he may make extracts from all books, vouchers, station returns, and other documents touching the traffic of the branch railway.

18. The Branch Railway Company may recover against the Great Indian Peninsula Railway Company if the balances be not duly paid.

19. If any difference arise between the Branch Railway Company and the Great Indian Peninsula Railway Company concerning the receipts, or share of the receipts, to which the Branch Railway Company may be entitled, or touching the conduct and management of the branch railway, or the tolls or charges imposed or charged, or omitted to be imposed or charged by the Great Indian Peninsula Railway Company with respect to the traffic of the branch railway, or concerning the time of the trains, or touching the bye-laws, rules, and regulations to be made by the Branch Railway Company, or concerning any of the provisions of the agreement between the Branch Railway Company and the Great Indian Peninsula Railway Company, the matters in difference to be from time to time referred to arbitration in the manner prescribed by the Railway Companies' Arbitration Act, 1859, for the settlement of disputes by arbitration: provided that under no circumstances are the receipts and profits upon the main line of the Great Indian Peninsula Railway to be made contributory to the profits of the Branch Railway Company.

20. Provided also, that, if it shall appear at the close of any half year ending 30th June and the 31st December, after the expiration of three years from the opening of the branch railway, that the gross receipts of the branch railway referred to in Article 15 have not been for such half year sufficient for the payment of the charges and expenses incurred by the Great Indian Peninsula Railway Company during the same period in working the branch railway, then the Great Indian Peninsula Railway Company to be at liberty, on giving six months' notice, to determine the contract, and surrender the working of the branch railway.

Part IV.

CORRESPONDENCE between the Secretary of State for India and the Bombay, Baroda, and Central India Railway Company.

No. 1.

(No. 1233 of 1865.)

Bombay, Baroda, and Central India
Railway Company Offices, 10, Liverpool-street,
New Broad-street, London, E.C.,
6 November 1865.

Sir,

THE Board of Directors propose, with the sanction of the Secretary of State for India in Council, to address the Letter, No. 1202 of 1865, copy of which is annexed, to the Agent of the Company at Bombay.

I have, &c.
(signed) *J. A. Baynes,*
Secretary.

The Under Secretary of State for India.

Enclosure to No. 1.

(No. 1202 of 1865.)

Bombay, Baroda, and Central India Railway,
London, November 1865.

Sir,

I beg to acknowledge the receipt of your letter, No. 4713, and its accompaniments, with reference to a proposed branch line from Ahmedabad to Wudwan.

2. The Board have had this important subject under their consideration. They quite appreciate the advantages that would accrue to the existing guaranteed line from the construction of productive branches into fertile and populous districts, contiguous to the main line, especially if such branches are worked by the guaranteed Company as part of its system. It is important also for the development of railways in India (especially if the guarantee system is not to be extended) that the branches first made with unguaranteed capital should be rapidly constructed, and be shown to be early and fairly remunerative. From the papers under notice, the branch referred to appears likely to answer this description.

3. The Board are much pleased to find that the amount likely to be subscribed towards the undertaking by the Native Chiefs of Kattiawar is 200,000 *l.*, and that there is a probability of a further considerable amount of capital being raised in Bombay. The capitalising of the Government subsidy, as suggested, would certainly lessen the amount to be raised and would thus make the matter an easier one in the first instance. Whether it would be a greater benefit in the long run remains to be seen. The Board quite think that a portion of the amount required might be raised in this country, though the time has not yet arrived when unguaranteed Indian investments are very acceptable among English capitalists.

4. The Directors approve generally of the proposals for the construction of this branch. A separate Company would, however, have to be formed for carrying it out, which might be managed, probably, by the existing Board of Directors, in connection with others to be appointed.

5. With regard to the working of the branch, when constructed, your proposals appear almost too favourable to the branch line. The rate of working (50 per cent. of the gross receipts) would hardly be sufficient to cover interest, and depreciation on locomotive, and carriage, and wagon stock, and the ordinary current expenses of working, which on a branch line are always higher in proportion than on a through line. The period of seven years is also a long time, during which no alteration could be made in the rate of working. The maintenance of the line, too, should not fall on the working Company until the line had been opened 12 months.

6. It appears from your letter that it is proposed to afford Government all the facilities and concessions with regard to the carriage of mails, troops, &c., which are granted under the existing contract with guaranteed Companies. This will press rather hardly upon a line that has not enjoyed the benefit of the guarantee, and appears to be giving the *full benefit* to Government, while receiving only a *diminished portion* of its aid in return.

7. These

7. These are some of the matters which suggest themselves on the perusal of the papers. The Board will more maturely consider them before coming to any final agreement. They are most anxious to facilitate the construction of such branches as this, by all reasonable means in their power; and they hope that the sanction of the Bombay Government will be given without delay to any further surveys and arrangements that may be necessary to be made for carrying it out.

I am, &c.
(signed) *J. A. Baynes,*
Secretary.

C. Currey, Esq., Managing Agent.

No. 2.

Sir, Indian Office, 30 November 1865.

I AM directed by the Secretary of State for India to acknowledge the receipt of your letter of the 6th instant, No. 1233, and its enclosure, being copy of a letter proposed by the Directors of the Bombay, Baroda, and Central India Railway Company, to be addressed to their agent at Bombay, No. 1202, which may now be forwarded as an expression of the Board's views.

I am to add, that the proposal to capitalize the Government subsidy of an unguaranteed railway, is one which Sir Charles Wood considers to be quite inadmissible, and that he will inform the Government of Bombay accordingly.

I am, &c.
(signed) *Dufferin.*

J. A. Baynes, Esq.

(Railway, No. 18.)

To His Excellency the Right Honourable the Governor General of India in Council.

Sir, India Office, London, 23 March 1867.

Para. 1. By Lord De Grey's Despatch, No. 30, of 25th June last, your Excellency was informed that a correspondence had been going on with the Indian Branch Railway Company, who had sought some modification of the terms offered to, and formerly accepted by them, and then regarded as the maximum terms to be granted to any Company proposing to construct railways without a guarantee of interest.

2. Subsequently, the difficulty of raising the requisite capital for the Company's undertaking, on the terms proposed, induced the Directors to apply for a guarantee similar to that granted to other Indian Railway Companies; and my predecessor, Lord Cranborne, after carefully considering the subject in Council, resolved on a qualified compliance with their application.

3. It was thought, however, that in future some changes in the conditions of contract adopted in relation to the Companies already guaranteed might advantageously be made, and a new draft contract has accordingly been prepared, of which, and of the letter* communicating it to the Branch Railway Company, copies are herewith transmitted. From these papers your Excellency will learn that a guarantee of 5 per cent. per annum has been offered to the Company for the construction of so much of their projected Oude and Rohilcund railways as shall consist of a main line from Buxar, on the East Indian Railway, to Moradabad, or such other point in Rohilcund as may be determined upon, with branches to Benares, Cawnpore, Fyzabad, and to the foot of the hills near Nynee Tal.

* Dated 7 March 1867.

4. In the event of the Directors accepting the guarantee, the arrangements adverted to in your Despatch, No. 110, of 18th December last, with respect to the loan to the Company of 60,000 *l.*, will necessarily be superseded.

I have, &c.
(signed) *Stafford H. Northcote.*

(Enclosure.)

Sir, India Office, 7 March 1867.

In my letter of 29th November last, it was intimated to you that an application made by the Indian Branch Railway Company, for a guarantee of interest on the capital required either for the whole or for part of the system of railways which they had undertaken to construct, would be replied to after the subject had been fully considered by the Secretary of State in Council.

In continuation of that letter, I am now desired by Lord Cranborne to enclose, for the information of the Directors, a draft* deed of contract, exhibiting the terms on which it is proposed henceforward to grant guarantees to Indian Railway Companies, and to state that, on the basis of the conditions therein set forth, he is prepared to grant to the Indian Branch Railway Company a guarantee, at 5 per cent., for the construction of a portion of their Oude and Rohilcund project; that is to say, of a main line from Buxar, on the East Indian Railway, to Moradabad, or such other point in Rohilcund as may be determined upon, with branches to Benares, Cawnpore, Fyzabad, and to the foot of the hills near Nynee Tal.

I am, &c.

To Major General C. C. Johnston. (signed) *Herman Merivale.*

Extract Railway Despatch from the Secretary of State to the Governor General of India, No. 60 ; dated 16 August 1867.

Herewith are transmitted two parts of the contract entered into with the Indian Branch Railway Company for the construction of lines in Oude and Rohilcund, one part for the use of your Government, and one part for the use of the Chief Commissioner in Oude.

It will be observed that the contract differs, in some respects, from the draft of which you have already received a copy. In that draft it was proposed to make over the land to the Company in perpetuity. It has been pointed out, however, that if this were done, certain clauses in the contract would be inoperative; and, in order to carry out the spirit of the understanding between the Company and the Secretary of State in Council, as well as to preserve the rights intended to be reserved to the latter, it has been decided that the land shall be leased to the Company for a term of 999 years. Several other variations will be noticed in the contract in matters of detail; but the only one to which it appears necessary to direct attention, is that in the clause relating to tolls and fares. On the representation of the Directors, it has been decided to place the Company on the same footing as others in this respect. When, therefore, a maximum scale has once been fixed Government will not have power to direct alterations in it until the net profits exceed 10 per cent.

The Government control in India of this Railway Company will be exercised by your Government through the Chief Commissioner in Oude. It does not appear to me to be necessary to make any observations on this subject, but as the business will be new to the Oude Administration it would seem to be desirable that an officer of experience in the duties of the department should be selected as Consulting Engineer to the Chief Commissioner.

Contract between the Secretary of State in Council and the Indian Branch Railway Company, dated 2nd August 1867.

This Indenture made this 2nd day of August 1867, between the Secretary of State in Council of the one part, and the Indian Branch Railway Company, "Limited" (hereinafter called "the Company"), of the other part. Whereas the company was registered under the provisions of "The Joint Stock Companies Act, 1856," for the purpose of constructing, working, and maintaining railways in India, and is empowered from time to time to enter into and conclude with the Secretary of State in Council such contracts, agreements, and arrangements, as the respective parties may think fit and agree upon for making any railway or railways in India, and any telegraphs connected therewith, and for maintaining and working the same: And whereas the Secretary of State in Council, considering the great

* This draft contract is not given, as it differs somewhat from that finally adopted. *Vide* pages 34 to 43.

great advantage resulting from the construction of railways in India, lately agreed to co-operate with the Company in the construction, in the manner and upon the terms and conditions hereinafter contained, of the following lines of railway (that is to say), a main line of railway from Buxar on the East Indian Railway to Mooradabad, or such other point in Rohilcund as might be determined upon, with branches to Benares and to Cawnpore, and to Byram Ghât, and to Fyzabad, and to the foot of the hills near Nynee Tal, in the provinces of Oude and Rohilcund, in all about 672 miles, and it was part of the terms of the said agreement that the Secretary of State in Council should guarantee, during the term of 999 years hereinafter agreed to be granted, interest at the rate of 5 *l.* per cent. per annum upon the sum of 4,000,000 *l.* (being the capital which it had been approximately estimated might be required for the construction of the said railways), upon 100,000 shares of 10 *l.* each in the Company, representing one-fourth of the said sum of 4,000,000 *l.* being subscribed for, and upon a deposit of 2 *l.* 10 *s.*, being 25 per cent. of the amount of each of such shares, being paid by the Company into the Bank of England, to the credit of the Secretary of State in Council. And whereas 100,000 shares of 10 *l.* each in the Company, were, previously to the 31st day of December 1866 subscribed for, upon each of which shares 2 *l.* 10 *s.* were paid, the money so paid amounting in the aggregate to 250,000 *l.*: And whereas the lastly mentioned sum was not paid into the Bank of England to the credit of the Secretary of State in Council, but that sum, and also other sums raised by the Company, were expended by the Company previously to the last-mentioned day for the purposes of their undertaking; and it was agreed that the whole amount of the monies so raised and expended should, for the purposes of these presents, be taken to have been on the last-mentioned day the sum of 350,388 *l.* 9 *s.* 3 *d.*, and that the Secretary of State in Council should not require the Company to pay any deposit into the Bank of England to his credit in manner hereinbefore mentioned, but should guarantee interest on the said sum of 350,388 *l.* 9 *s.* 3 *d.*, and also on the sum of 3,649,611 *l.* 10 *s.* 9 *d.* (the same sums making together the said estimated capital of 4,000,000 *l.*) in manner hereinafter mentioned: And whereas the word "railway" hereinafter used is intended to mean and include all the branch lines of railway, as well as the main line of railway hereinbefore respectively mentioned.

Now, this indenture witnesseth that, in consideration of the premises, the Company do hereby, for themselves and their successors (so far as the covenants and agreements hereinafter contained are to be observed and performed by them), covenant with the Secretary of State in Council, and the Secretary of State in Council doth hereby, for himself (so far as the covenants and agreements hereinafter contained are to be observed and performed by the Secretary of State in Council), covenant with the Company and their successors in manner following, that is to say,—

Survey, estimate, and selection of line.

1. That the Company will, at their expense, in addition to the surveys and estimates they have already made for the said railway, make such further surveys, and frame such further estimates as the Secretary of State in Council may think necessary, and require to enable him to ascertain with more particularity the probable cost of the said railway, and that such further surveys shall be conducted, and further estimates framed under such supervision, and in such manner in all respects as the Secretary of State in Council shall direct; and if, upon such further surveys being made and further estimates completed, the Secretary of State in Council shall consider it undesirable to co-operate further in the construction of the said railway, it shall be lawful for him to terminate this contract upon his paying the expenses of all the surveys and estimates, and returning to the Company all monies (if any) which may have been paid by them to him, with interest on such monies at the rate of 5 per cent. per annum. And in case this contract shall be so terminated, all the said surveys and estimates shall belong to Her Majesty, for the purposes of the Government of India; but if, upon such further surveys being made and estimates completed, the Secretary of State in Council shall consider it desirable to co-operate in the construction of the said railway, it shall be lawful for him to determine, fix upon, and select the route and direction of the same, and such selected line of railway, of an estimated cost to be approved of by the Secretary of State in Council, shall be completed by the Company, and opened for the conveyance of passengers and goods with all practicable speed.

Notice of line.

2. That the Secretary of State in Council shall give notice to the company of the line when so selected as aforesaid, or of any part or parts thereof, as such part or parts shall from time to time be fixed upon, and it shall be lawful for the Secretary of State in Council from time to time to alter the said route or direction, or to extend or limit the same, as he shall think fit, after such notice as aforesaid; provided always, that if such alteration of route or direction shall be made after the said railway shall have been commenced in a previously selected route or direction, the expense of the said railway, or in any way incident to the said alteration, shall be considered as properly incurred by the Company.

Land.

3. That the Secretary of State in Council shall, after the selection of the route and direction of the said railway, or of any part or parts thereof, and from time to time as may be necessary, provide the land which shall be required for the said railway, or for the part or parts thereof so selected, and the works connected therewith, and for proper stations, offices, warehouses, and such other conveniences for the same as the Secretary of State in Council may determine to be necessary or desirable, and shall give to the said Railway Company possession thereof, and that all land of which possession shall be so given to the Company which shall not be permanently required for the purposes of the Company, shall, as soon as practicable, be restored and delivered up by the Company to

the Government of India, for the use of Her Majesty, her heirs and successors, for the purposes of the Government of India.

Works.

4. That the Company shall, on receiving possession of the said land, or any part thereof, forthwith, and subject to the supervision and control hereinafter prescribed, commence and proceed with diligence in the construction of the said railway, and of all such stations, offices, warehouses, fixed machinery, and other works and conveniences (including works for the defence of stations, bridges, or any other building or structure connected with the railway), as, in the opinion of the Secretary of State in Council (such opinion to be certified in writing under the hand of some officer of the Government) shall be necessary or expedient, as well with reference to the original construction of the said railway and the working thereof, as with reference to the permanent maintenance thereof, and its protection from injury or destruction by inundation, tempests, or other causes whatsoever: Provided always, that if the costs incurred in the erection of such defences shall exceed the sum for which such stations, bridges, or other buildings or structures might have been constructed as efficient defences without interfering with their purposes as railway works, such excess shall be paid by the Government, the question of such efficiency and the amount of such excess being determined by the Secretary of State in Council; and such railway shall be made with such gradients as the Secretary of State in Council shall in writing direct; and such railway shall be furnished with rails of such weight and strength as to render it suitable for a traffic of engines, carriages, and wagons, and other vehicles weighing respectively, when loaded, not more than three-and-a-half tons on each wheel, and for travelling at a speed of not more than 15 miles an hour; and such rails shall be laid down and secured in such manner, and shall consist either of a single or double line of rails, as the Secretary of State in Council shall in writing direct; and such railway shall, if required by the Secretary of State in Council, and at such time or times as he shall in writing require, be provided with an electric telegraph constructed along all or such part or parts of the said railway, and upon such principle, and under such regulations as to its use and the terms of its use as the Secretary of State in Council shall, in writing, direct or approve of; and the Company shall from time to time attend to, execute, and perform all such directions in writing as may from time to time be given by the Secretary of State in Council for any deviations from, or alterations in any directions or requisitions previously made or given with respect to the premises. And the Company shall, as soon as the said railway shall be completed for such a distance as in the opinion of the Secretary of State in Council shall be desirable, open the same for the conveyance of passengers and goods.

Opening.

5. That it shall be lawful for the Secretary of State in Council from time to time, by notice to the Company, to require any specified part or parts of the said railway to be completed as aforesaid, and to be opened for the conveyance of passengers and goods, before the remaining part or parts thereof shall be constructed, and such requisitions shall be complied with and fulfilled by the Company; and if at any time or times it shall, in the opinion of the Secretary of State in Council, be desirable that a double line of rails or any additional line of railway shall be constructed, in addition to the line or lines then already constructed for the purpose of relieving the traffic on any portion of such line or lines, and for providing further accommodation, or for any other purpose; and the Secretary of State in Council shall give to the Company notice in writing to construct such additional line or lines, the Company will forthwith construct the same on the same or similar terms to those herein provided as to the line or lines then already constructed.

Money capital.

6. That the Company shall pay into the Bank of England to the account of the Secretary of State in Council the sum of 3,649,611 *l.* 10 *s.* 9 *d.* sterling, being the amount of the said estimated capital of 4,000,000 *l.*, less the said sum of 350,388 *l.* 9 *s.* 3 *d.* so taken to have been expended by the Company as aforesaid, by such instalments and at such times as the Secretary of State in Council may require; and such payments may be made in sums of not less than 5,000 *l.* each in London, provided that, if the Company shall receive any portions of the capital already subscribed, or hereafter to be subscribed in India, it shall be lawful for them to pay the amount so received, in sums of not less than 10,000 rupees, into the Treasury at Lucknow, in or towards satisfaction of the said instalments; and the acknowledgments of such respective payments there, shall, when produced to the Secretary of State in Council in London, be considered and taken as payments on the respective days of payment thereof, in part satisfaction of the said sum of 3,649,611 *l.* 10 *s.* 9 *d.*, at the exchange of 2 *s.* for each Government rupee; provided always, that such payments into the Treasury at Lucknow shall not exceed the amounts which may from time to time be required for expenditure in India, such limit being determined upon by the Secretary of State in Council.

Drafts on capital.

7. That as often as and when any money shall be required by the Company for any works or purposes which shall have been sanctioned by the Secretary of State in Council, and which are about to be executed, or in course of execution, or have already been performed to the satisfaction of the Secretary of State in Council, such monies may be drawn in such sums as shall from time to time be necessary by the Company in London or in India, according to such arrangements as shall be made from time to time with the Secretary of State in Council for that purpose; but 10 days' notice of every such draft or proposed draft shall be given to the Secretary of State in Council, or to the Government in India, or to such authority as the Government in India may direct; and all sums of money which shall be so drawn at Lucknow shall be set off at the exchange

exchange of 2 *s.* for each Government rupee against the said sum of 4,000,000 *l.* sterling, or so much thereof as shall have been paid into the Bank of England to the account of the Secretary of State in Council as aforesaid, and the Company shall not in any case be entitled to draw in London or in India to an extent greater than the balance in their favour for the time being.

Plant, fares, and tolls.

8. That when and so soon as the said railway, or any part or parts thereof which shall have been required by the Secretary of State in Council to be completed before the construction of the other parts, shall be completed and ready to be opened for the use of the public, and so from time to time as any such part thereof shall be so completed and ready to be opened, the Company will, subject to the supervision and control hereinafter mentioned, provide, to the satisfaction of the Secretary of State in Council, a good and sufficient working stock of engines, carriages, and other plant and machinery for working the said railway, or such part or parts thereof as shall have been completed as aforesaid, and for carrying on the business and traffic of the same; and the Company will forthwith commence and carry on the business of common carriers of goods and passengers upon the said railway, and for that purpose shall cause to be run on the said railway so many trains, at such time and at such rates of speed, not exceeding 15 miles an hour, and between such places and with such conveniences and accommodations as the Secretary of State in Council shall from time to time require. And the Company will allow the use of the said railway, and telegraphs connected therewith to the public, on such terms as shall be approved by the Secretary of State in Council, but the Company shall be empowered to charge such fares for the carriage of passengers and goods, and such tolls for the use of the said railway and telegraphs, as they shall think fit, provided such fares and tolls respectively shall never exceed a maximum rate to be from time to time fixed for the same respectively by the Secretary of State in Council, which maximum rates respectively when such net earnings as are hereinafter mentioned shall in any year have exceeded 10 per cent. on the outlay, be reduced in accordance with any requisition of the Secretary of State in Council in that behalf, but only with a view of limiting the said fares and tolls so far as that the net earnings shall not exceed 10 per cent. as aforesaid.

9. That upon completion of the said railway, or of any part or parts thereof which shall have been required by the Secretary of State in Council to be completed before the construction of the remaining part, the Secretary of State in Council shall grant to the Company a lease of, or otherwise secure to them a right and title to, the land which shall have been provided under the provisions hereinbefore contained, or of so much thereof as shall be required for the completed lines, and for the works and conveniences thereto belonging, for a term of 999 years, commencing from the date of these presents, unless the same shall be sooner determined under the provisions herein contained, and the Secretary of State in Council shall guarantee to the Company the right to and possession of such land as against any claimant, but shall not be called to show any title thereto.

Supervision. Government Director may be appointed; his powers and privileges.

10. That the Company and their Officers, Servants, and Agents, as also their accounts and affairs, shall in all things be subject to the superintendence and control of the Secretary of State in Council, as well in England as elsewhere, and in particular, that no bye-laws, contracts, orders, directions, proceedings, works or undertakings, acts, matters, or things whatsoever shall be made, done, entered into, commenced, or prosecuted, by or on the part of the Company, unless previously sanctioned in writing by the Secretary of State in Council, or by the Executive Government in India, and that no monies shall be raised by the Company by any other means than by calls upon or payments in respect of the shares in the same Company, without the sanction of the Secretary of State in Council, in writing; and no extension in the number of shares in the Company or in the amount of its capital shall be made, unless sanctioned in like manner; and that it shall be lawful for the Secretary of State in Council, from time to time, to give to the Company, their Officers, Servants, and Agents, all such orders and directions as the Secretary of State in Council shall from time to time think fit, with reference to the railway and works to which this present contract relates, and with reference to the manner and times of executing the same, and with reference to any contracts, orders, and directions to be entered into, made, or given with regard thereto, and otherwise with reference to the same; all which contracts, orders, and directions shall be executed and followed by the Company, to the satisfaction of the Secretary of State in Council, the costs and expenses of the same, which shall have been allowed and sanctioned by the Secretary of State in Council, being paid out of the capital of the Company. And that, for better enabling the Secretary of State in Council to exercise the control and direction intended to be hereby secured, the Company shall record and keep in proper books for that purpose full and particular accounts of all their transactions and proceedings, including full and true minutes of all their meetings, meetings of Directors, communications with India, and correspondence, so as at all times to exhibit thereby fully and truly the state of their affairs and proceedings, and that the Secretary of State in Council, and any person or persons appointed by him in that behalf, shall, at all reasonable times have free access to all the books, accounts, papers, and documents of the Company (except communications between the Company and their legal advisers), and power to make copies of or extracts from the same, whether such books, accounts, papers, and documents relate to the said railway and works, or to any other matters and things whatsoever in which the Company shall or may be interested; and, for the purposes aforesaid, it shall be lawful for the Secretary of State in Council, from time to time, to appoint any one person, not being a shareholder in the Com-

pany, to be a Director of the Company, to be called the Government Director, which Director, if and when appointed, shall rank as and be one of the Board of Directors of the Company, and be entitled in all things to act as such, and to exercise at his discretion a right of veto in all proceedings whatsoever at boards of the said Directors, except proceedings for the purpose of communicating with the legal advisers of the Company, and shall not be removable except by order of the Secretary of State in Council, and shall, in case the whole number of Directors shall at the time of his appointment be filled up, come and be in the place of the Director who shall retire from the direction according to the decision of the Board, such decision being taken by ballot, but such Government Director shall not receive any salary from the Company: Provided always, that nothing hereinbefore contained shall authorise the Secretary of State in Council to appoint any officers or servants of the Company except such Government Director as aforesaid.

Sanction of expenditure.

11. That all the expenses of the Company, in respect to the said railway, shall from time to time be stated and submitted to the Secretary of State in Council for his sanction and approval, and, as between the Company and the Secretary of State in Council, shall be allowed so far only as the same shall from time to time have been sanctioned and approved by the Secretary of State in Council: Provided always, that the last-mentioned stipulation shall not interfere with any such subsidiary agreement or agreements (if any) as from time to time may be made between the Company and the Secretary of State in Council for the performance of any part or parts of the said railway and works at any sum or sums of money to be specified in such subsidiary agreement or agreements, in which case the expenses in respect of the same shall be allowed and taken at the sum or sums which shall be so agreed upon.

Capital account.

12. That a capital account relating to the construction of the said railway, and the works, conveniences, and telegraphs thereto belonging, and relating to the original cost of engines, carriages, plant, and machinery provided for the purposes of the said line, to be called "The Indian Branch Railway Capital Account," shall be kept by the Company, to which account all monies paid by the Company, the expenditure of which shall have received the sanction and approval of the Secretary of State in Council, shall from time to time be carried, and when and so soon as the said railway and works shall have been completed and furnished with the necessary rolling stock and plant, or at any earlier time or times, if the Secretary of State in Council shall so require, the said capital account shall be made up, and a statement shall be furnished to the Secretary of State in Council of the aggregate amount of capital which, according to such account, shall have been expended, and such amount shall, by examination of such account, be ascertained and certified by the Secretary of State in Council, and thenceforth and from the opening of the said line of railway, or any part thereof, the cost of maintaining it, with its machinery and stock in good working condition, shall be payable by the Company out of the revenue of the said railway, including any interest to be received from the Secretary of State in Council as hereinafter is mentioned; but upon any additions, alterations, or improvements, such as shall properly be chargeable to the capital account, being thereafter made, with the sanction and approval of the Secretary of State in Council, to, of, or in the said railway, or the works, conveniences, or telegraphs thereto belonging, or the engines, carriages, and other plant and machinery belonging thereto, the cost necessarily incurred in executing such additions, alterations, or improvements shall be added to the said capital account, and if it shall happen that any liability shall be incurred to third persons for consequential damage caused by any works executed by the Company under the sanction or authority of the Secretary of State in Council, all expenses necessarily incurred in satisfying the same shall be paid by the Company and added to the said capital account, and the said capital account shall from time to time be made up and stated afresh as occasion shall require, and be ascertained and certified accordingly.

Repair and maintenance of rolling stock.

13. That the Company shall at all times, during the said determinable term of 999 years, keep the said railway, or so much thereof as shall be completed and opened for traffic, and the works and conveniences belonging thereto, and the telegraphs on or belonging to the said railway (if any) in a state of good repair, and in good working condition, to the satisfaction of the Secretary of State in Council, and shall keep the same railway fully provided with rolling stock and plant adequate to the service thereof, to the satisfaction of the Secretary of State in Council.

Revenue account.

14. That the Company shall in all such forms and under such heads or divisions as shall be prescribed by the Secretary of State in Council, keep accounts of all receipts and payments whatsoever in respect of the said railway (other than such receipts and payments as properly belong to the capital account hereinbefore agreed to be kept), and such accounts shall be called "The Indian Branch Railway Revenue Accounts," and shall be made up half-yearly to the 30th day of June and the 31st day of December, both inclusive, in every year, or to such other days in the year as the Secretary of State in Council shall appoint, and shall be regularly transmitted to the Secretary of State in Council, who shall be at liberty at all times in auditing the same accounts to make any corrections therein which may be necessary.

Deposit of revenue and drafts thereon.

15. That all the earnings of the said railway received by or on account of the Company in India shall be paid at such times and in such manner as the Secretary of State in Council shall direct, without any deduction under any pretence whatever, into the Treasury of the Government

Government of India at Lucknow, to an account to be kept separately, to be called "The Indian Branch Railway Revenue Account"; and when any money shall be required by the Company for any purposes sanctioned by the Secretary of State in Council, or by the Executive Government of India, such money may be drawn by the Company according to such arrangements as shall from time to time be made with the Secretary of State in Council or the Executive Government of India for that purpose, and interest at the rate of 5 per cent. per annum shall be allowed by the Secretary of State in Council upon the amount of such earnings so paid into the Treasury, after deducting the sums drawn out as aforesaid, and also such sums as the Secretary of State in Council or the Executive Government of India shall from time to time determine to be necessary to be kept as a balance to meet drafts for current expenditure, the account thereof being made up on the first day of each month, and such interest shall accrue to, and be payable at, the end of each half-year, and be regarded and dealt with as net earnings, in accordance with the provisions hereinafter made.

Guarantee of interest.

16. That the Secretary of State in Council shall, from time to time during the said determinable term of 999 years, pay out of the revenues of India to the Company in London half-yearly, on the 1st day of January and the 1st day of July in every year, interest at the rate of 5 per cent. per annum on the said sum of 350,388 *l.* 9 *s.* 3 *d.*, and also on the said sum of 3,649,611 *l.* 10 *s.* 9 *d.* sterling, or on such parts of the last-mentioned sum as shall for the time being have been paid into the Bank of England to the account of the Secretary of State in Council, or into a Treasury in India as aforesaid, such interest upon the said sum of 350,388 *l.* 9 *s.* 3 *d.* being considered as running from the 1st day of January 1867, and such interest on any part of the said sum of 3,649,611 *l.* 10 *s.* 9 *d.* being considered in the first instance as running from the day on which the same part shall have been so paid into the Bank of England, or into such Treasury in India, to such account as aforesaid.

Excess above.

17. That if the expenditure of the Company in making the said railway and works, or otherwise in respect of the matters to be included in the said capital account, shall exceed the said estimated sum of 4,000,000 *l.*, the money necessary to meet such excess shall be raised and paid by the Company into the Bank of England to the account of the Secretary of State in Council, and the Secretary of State in Council shall time from to time during the said determinable term of 999 years, pay out of the revenues of India to the Company half-yearly, on the days aforesaid, interest at the rate of 5 *l.* per centum per annum on such part of such moneys as shall be raised by the issue of shares, and at such rate per annum as may be mutually agreed on, such part of the same monies as shall be raised on loan, such interest in the said respective cases to be calculated from the respective times when the same moneys shall have been so paid into the Bank of England as aforesaid: Provided always, that the mode and terms in and on which any further monies shall be raised or capital created shall in all respects be determined on and fixed by the Secretary of State in Council, and the raising, creation, and issue of such monies and capital respectively shall be in all respects subject to his sanction, and under his superintendence and control.

Application of profits.

18. That so soon as the Company shall begin to work the said railway, or any part thereof, and thenceforth during the said determinable term of 999 years, the net earnings which shall be realised during any year, or from the commencement up to the 31st of December next following, on the said line of railway, or on any part thereof, after deducting therefrom all the sums which shall have been expended in the repairs and maintenance of the said railway and works, and the repair and restoration of the rolling stock and plant belonging thereto, and in the management and conduct of the Company and its affairs, and which shall have been allowed or sanctioned by the Secretary of State in Council, and also deducting such sum (if any) as, with the consent of the Secretary of State in Council, may be appropriated and set apart for repairing, restoring, and making good any deterioration of the railway and works or stock and plant, and for the current expenses of working the said railway (the money to be so appropriated and set apart as a reserve fund, or any part thereof, being invested and accumulated or otherwise dealt with till required for application in any manner the Company may think fit, subject to the sanction and approval of the Secretary of State in Council), shall be applied in the first instance in or towards discharge of the guaranteed interest which shall be payable by the Secretary of State in Council under the covenants in this indenture contained in respect of the said year (other than the interest on earnings payable under Clause XV. of these presents), so as to exonerate the Secretary of State in Council, so far as the same net earnings will extend, from the payment of such interest, the money to be so applied being reckoned at the fixed and permanent exchange of 2 *s.* per Government rupee, and the residue (if any) of such net earnings shall be applied in manner following: that is to say, one moiety thereof shall be forthwith applied in the payment of such sums of money as shall at any previous time or times have been paid by the Secretary of State in Council to the Company under the covenants in this indenture contained, by way of interest as aforesaid (other than such interest on earnings as aforesaid), together with simple interest on such sums of money at the rate of 5 per cent. per annum from the times of payment respectively, and such moiety shall be paid into the Treasury of the Government at Lucknow, and shall be reckoned at the said rate of exchange, and shall be applied in reduction and discharge of the whole of the interest payable to the Secretary of State in Council on the said sums of money before the same

shall be applied in liquidation of any part of the principal thereof; and the other moiety of the said surplus net earnings shall be paid to or applied for the use and benefit of the Company; and if at any time during the said determinable term of 999 years, the whole of the monies previously paid by the Secretary of State in Council as aforesaid, with interest thereon as aforesaid, shall have been repaid and discharged, then for every year during such time, and so often as the same shall happen, the Company shall be entitled for their own use and benefit to the entirety of the said surplus net earnings, or, as the case may be, so much thereof as shall remain after such repayment and discharge as last aforesaid shall have been made.

Mails and troops.

19. That the Company will, at all times during the said determinable term of 999 years, convey on the said railway the Government mails and post bags, and the guards and other servants of the post office in charge thereof, free of charge, and, when they are on duty, all officers and persons in the administration of the post office, also free of charge, and provide, free of cost, sorting carriages and any other kind of vehicle which the Secretary of State in Council may consider to be requisite for the purposes or convenience of the post office and its officials, and convey on the said railway, when they are on duty, the troops in Her Majesty's service, both horse and foot, and all other persons to whom the provisions of the Mutiny Acts and regulations for the time being in force for Her Majesty's European and Indian forces respectively shall be applicable, and all officers and men belonging to the police force, and all artisans on the business of the Government, and all officers' servants accompanying their masters when on duty, and the officers and persons of similar station in life, shall be entitled to travel in first class carriages at second class fares, and the troops and men belonging to the police force, and European artisans and officers' servants, in second class carriages at the lowest fares, and all the other persons at the lowest fares, with two tons of baggage free of charge for every 100 men so carried; and the Company will also at all times convey on the said railway all general stores belonging to the Government, and all guns, ammunition, horses, and other animals used for military purposes, and all military stores, carriages, waggons, camp equipage and equipments whatsoever, at the lowest rate for the time being chargeable for the carriage of such animals, goods, and merchandise, the several privileges of conveyance and carriage hereby stipulated for being at all times to be used and enjoyed in preference to and priority over the public use of the said line of railway for conveyance and carriage.

Surrender.

20. That, after any portion of the said railway shall have been finished and in work for three calendar months at least, it shall be lawful for the Company then, or at any time thereafter during the said determinable term of 999 years, to give notice in writing of their intention to surrender and relinquish the said railway and works on any day to be mentioned in such notice, so that such notice be served at least six calendar months before that day, both on the Secretary of State in Council in London, and also on the Secretary of Government at Calcutta, and in case of such notice being given, the Company shall, at the expiration thereof, surrender and relinquish to Her Majesty, for the purposes of the Government of India, the railway and works accordingly, together with the telegraphs (if any), and shall, with all convenient speed, sell any lands in Great Britain which may then be held by the Company for the purpose of their business or undertaking, and pay the clear monies to be produced by such sale into the Bank of England to the account of the Secretary of State in Council, and shall deliver to the Government of India, or their authorised Agents, on behalf of Her Majesty, for the purposes of such Government, the engines, carriages, stock, plant, and machinery belonging to the said railway and works, and all plans, surveys, sections, printings, writings, drawings, and documents whatsoever connected therewith, and the premises to be so surrendered and delivered shall be accepted and received accordingly, it being expressly agreed that the said railway, works, stations, telegraphs, engines, carriages, stock, plant, and machinery shall, at the time of such surrender and delivery, be in good working order, according to the covenant in that behalf hereinbefore contained on the part of the Company; and immediately upon such surrender and delivery being made, the Secretary of State in Council shall be bound to pay out of the revenues of India to the Company the capital expended by the Company upon the said railway works and premises so to be surrendered and delivered, such expended capital being ascertained and certified in the manner hereinbefore mentioned, together with such parts (if any) of the capital raised for the purposes of this contract as shall remain in the Bank of England to the account of the Secretary of State in Council, and to discharge and indemnify the Company from all debts and liabilities incurred with the sanction of the Secretary of State in Council; and thereupon the covenants hereinbefore contained for payment of interest shall cease as from the day upon which the said railway and works shall be surrendered and accepted, and all claims by the Secretary of State in Council on account of interest on the Company shall also cease, and the Secretary of State in Council shall be at liberty to retain out of any monies payable to the Company the amount of all claims and demands of any sort then existing against the Company on their revenue account in respect of their undertaking, and which shall not be shown to have been fully satisfied and discharged: Provided always, that the Secretary of State in Council shall not be liable to refund any sum expended in the maintenance or working of the said railway, or any part thereof, after the same shall have been opened, which sum is to be provided by the Company out of the revenues of the line, and interest as hereinbefore provided or otherwise.

21. That

Purchase.

21. That at any time during the first six calendar months after the expiration of the 20th year, computed from the date of this contract, or at any time during the first six calendar months after the expiration of any succeeding 10th year, computed from the same date, up to and inclusive of the 990th year computed as aforesaid, in case no surrender shall have been made by the Company under the last preceding clause, it shall be lawful for the Secretary of State in Council to give notice to the Company in London, and at Lucknow or elsewhere in India, of his intention to purchase, on behalf of Her Majesty, for the purposes of the Government of India, the said railway and works, together with the stations and telegraphs (if any), and the engines, carriages, stock, plant, and machinery belonging to the said railway and works, but subject to such debts and liabilities (if any) as may have been incurred to Her Majesty or to the Secretary of State in Council (exclusive of any arrears of interest on the capital of the Company paid by the Secretary of State in Council, under the conditions of this agreement, which shall not have been repaid), or to any person or persons, with the sanction of the Secretary of State in Council, and to interest on such of the said debts as carry interest, from the day on which possession shall be taken of the said railway, but not from any earlier time; and thereupon, at the half-yearly day next but one following such notice, the land to be provided as aforesaid, with the railway thereon, and all buildings, works, fixed machinery, stations, telegraphs, and conveniences whatsoever connected therewith, shall revert to and become the property of Her Majesty, for the purposes of the Government of India; and in case any lands in Great Britain shall then be held by the Company for the purposes of their business or undertaking, the same shall be sold, and the clear monies to be produced by such sale shall be paid into the Bank of England, to the account of the Secretary of State in Council; and the Company shall at the same time deliver to the Government of India, or their authorised Agents, on behalf of Her Majesty, for the purposes of such Government, the engines, carriages, stock, plant, and machinery belonging to the said railway and works, and all plans, surveys, sections, books, printings, drawings, writings, and documents whatsoever in anywise relating thereto; and provided notice as aforesaid shall have been given at any time during the first six calendar months after the expiration of the 20th year, or of any 10th year thereafter, up to and inclusive of the 90th year computed as aforesaid, then the Secretary of State in Council shall be bound to pay in London, out of the revenues of India, on the said half-yearly day, for the purchase of all the same premises, a sum equal to the amount of the value of all the shares and capital stock in the Company issued or created for the purposes of the said Indian Branch Railway, calculated according to the mean market value in London of such shares or stock during the three years immediately preceding the expiration of the year during six months after the expiration of which such notice to purchase as aforesaid shall have been given (but not including any capital which may have been expended by the Company otherwise than in accordance with the terms of this agreement), and shall also be bound to indemnify the Company against all such debts and liabilities (if any) as they may have incurred to, or with the sanction of, the Secretary of State in Council, and as shall be then subsisting. But if notice as aforesaid shall have been given during the first six calendar months after the expiration of some 10th year subsequent to and computed from the aforesaid 90th year, in that case, instead of such payment as aforesaid, then the Secretary of State in Council shall be bound to pay out of the revenues of India to the Company the capital expended by the Company upon the said railway works and premises (such expended capital being ascertained and certified in the manner hereinbefore mentioned), after a proper deduction for all debts and liabilities then affecting the Company or the property of the Company, and also to indemnify the Company against all such debts and liabilities, if any, as they may have incurred to, or with the sanction of, the Secretary of State in Council, and as shall be then subsisting; and in the event of purchase taking place in either of the two ways above described, the covenants hereinbefore contained for payment of interest shall cease.

Possession as a remedy.

22. That if default shall be made by the Company in the raising and payment of the said sum of 3,649,611 *l.* 10 *s.* 9 *d.*, or any of the instalments thereof, or of such further capital as shall be required for the construction of the said railway, or in the due application of any monies drawn in London or in India as aforesaid, or in the execution of the said railway and works conformably with the covenants in that behalf hereinbefore contained, or in case the said railway shall not be worked to the satisfaction of the Secretary of State in Council, or in case of any other breach on the part of the Company of any of the covenants herein contained, it shall be lawful for the Secretary of State in Council, on giving to the company in London three calendar months' notice of his intention in that behalf, to terminate the interest of the Company in the said land, railway, telegraphs, and works to be taken or constructed under these presents, and by their Agents to assume, on behalf of Her Majesty, for the purposes of the Government of India, possession of the land, railway, telegraphs, and works, and of all or any of the engines, carriages, stock, plant, and machinery provided for the same or belonging thereto, and all plans, surveys, books, printings, drawings, writings, and documents whatsoever in anywise connected with the undertaking and affairs of the said railway or relating thereto, and in that case any lands in Great Britain which may then be held by the Company for the purposes of their business or undertaking shall, with all convenient speed, be sold, and the clear monies to be produced by such sale shall be paid into the Bank of England, to the account of the Secretary of State in Council. And in case of such notice being given, the Secretary of State in Council shall be liable to repay, out of the revenues of India, within six calendar

months after its expiration, to the Company in London, the capital expended by the Company upon the said railway and works so ascertained and certified as hereinbefore is mentioned, after a proper deduction for all debts and liabilities then affecting the Company, or the property of the Company, the money so to be repaid to include so much (if any) of the capital raised for the purposes of the said railway as shall then remain in the Bank of England to the account of the Secretary of State in Council, and also to discharge, exonerate, and indemnify the Company from all debts, obligations, and liabilities for works and expenditure undertaken with the sanction of the Secretary of State in Council, and thereupon the covenants of the Secretary of State in Council in this identure contained for payment of interest shall cease, and all claims by the Secretary of State in Council on the Company shall also cease, the intention of the parties hereto being that, in case of the exercise by the Secretary of State in Council of the powers or authorities by this clause given to him, the said Company shall receive back their capital expended with such sanction as aforesaid, with interest at the rate or rates agreed on, and that the exercise by the Secretary of State in Council of the said powers and authorities shall be the only penalty to which the Company shall be liable, in case of default in raising sufficient capital for the purposes aforesaid, or in constructing and working the said railway to the satisfaction of the Secretary of State in Council.

Repairs by the Government of India.

23. That if default shall be made by the Company, after the said railway or any portion thereof shall have been opened, in their covenant to keep the said railway and works, or such part thereof as shall have been completed and opened for traffic in repair and condition, for the space of one calendar month next after notice in writing in that behalf from the Secretary of State in Council to the Company in London, it shall be lawful for the said Secretary of State in Council by his Agents to enter on the said railway and works, and to do and execute all such works as may be required for fulfilling the said covenant, and to charge the expenses of the same against the Company by setting off the amount of such expenses against any monies then payable or which shall thereafter become payable by the Secretary of State in Council for interest in manner hereinbefore mentioned, which interest shall, in such case, to that extent, be considered as paid and satisfied by such set-off or retainer, and shall, for all the purposes of these presents, be regarded and considered as interest actually paid by the Secretary of State in Council to the Company in pursuance of his covenant to pay interest under the 16th clause hereinbefore contained, and if such expenses shall not be satisfied by such set-off and retainer as aforesaid, then the Secretary of State in Council may set-off and deduct the same against and from all or any part of any other monies which shall, on any account whatsoever, under or by virtue of these presents, be or become payable by the Secretary of State in Council to the Company.

Capital expended may be paid in India Government stock.

24. That in every or any case in which under the provisions of these presents, the Secretary of State in Council shall, before the expiration of the said term of 999 years, become bound to repay the capital expended by the Company upon the said railway and works as aforesaid, or to pay for the purchase of the said railway works and stock, it shall be lawful for the Secretary of State in Council, at his sole option, instead of paying a gross sum in respect of the premises, to transfer to the Company, on the day on which such gross sum would have had to have been paid, such an amount of 5 *l.* per cent. Government of India Stock, redeemable at par, at the option of such Government, as shall, taking such Stock at par, amount to the sum which the Secretary of State in Council would have had to pay if he had chosen to make the payment in cash, and the amount of Stock so transferred to the Company shall be accepted by them in full payment and satisfaction of all monies which the Secretary of State in Council shall have become bound to repay or pay as aforesaid: Provided always, that the right to exercise such option shall not apply to the undrawn portion (if any) of the capital of the Company raised for the purposes of the said railway, which portion is to be repaid to the Company, with interest, under the provisions in that behalf hereinbefore contained, in case the Company shall relinquish or be deprived of the said railway and works as aforesaid.

Return of surplus.

25. That if, after the said railway and works, including the telegraphs if required, shall have been completed, and furnished with adequate working stock, the whole of the capital raised by the Company for the said railway shall not have been required for the purpose of the said capital account, the surplus thereof shall, to the extent to which the same shall have been paid into the Bank of England to the account of the Secretary of State in Council, or into a Treasury in India, be refunded to the Company in London, with such interest as shall be due on such capital at the time, and thereupon the aforesaid covenants for payment of interest shall no longer apply to the capital which shall have been so refunded.

Sanction of the Secretary of State in Council.

26. That any notice, direction, approval, or sanction to be given or signified on the part of the Secretary of State in Council for any of the purposes of these presents shall be sufficient and binding, if signed by the Secretary of State for India, or one of his Under Secretaries, or by the Secretary of Government at Calcutta, or by the Secretary to the Chief Commissioner in Oude, or by any other officer or servant duly authorised to act on behalf of the Secretary of State in Council in respect to the matters to which the same shall relate, and the Secretary of State shall not, in any case, be bound in respect of matters aforesaid, unless by some writing signed in the manner before mentioned.

27. That

27. That the Company shall keep an office at all times hereafter during the said term established at Lucknow, or any such other place or places as shall be agreed upon between the Secretary of State in Council and the Company, and shall keep at the said office an authorised Agent or authorised Agents, with whom the Secretary of State in Council and the Government at Calcutta, or the Chief Commissioner in Oude, or other officer or officers deputed in that behalf, may communicate on affairs concerning the said railway; and all drafts drawn by the said Agent or Agents, and all receipts of and acts done by such Agent or Agents on behalf of the Company, or concerning the said railway and works and the affairs thereof, shall be binding on the Company; and every notice to be given to the Company shall be sufficiently given if left at the said office or personally served on such Agent or Agents. Railway Office in India, and Agent.

28. That the Secretary of State in Council shall promote the passing, by the Legislative Council of the Governor General of India in Council, of any Act or Acts which shall be necessary or convenient for enabling the Company to fulfil in India the objects of their undertaking according to the terms and provisions of these presents, and the said Company shall be subject to any enactment for the regulation of the affairs of railways which may be passed by the said Legislative Council. Legislation in India.

In witness whereof Major General William Erskine Baker and William Urquhart Arbuthnot, Esquire, being two Members of the Council of India, have hereunto set their hands and seals, and the said Company have hereunto caused their common seal to be affixed the day and year first above written.

(signed) *W. E. Baker.* Seal.

W. U. Arbuthnot. Seal.

Signed, sealed, and delivered by Major General William Erskine Baker and William Urquhart Arbuthnot, being two Members of the Council of India, in the presence of

Robert Wickenden, Drapers' Hall.

The common seal of the Indian Branch Railway Company (Limited) was hereunto affixed by order of the Board of Directors, in the presence of

Company's Seal.

Wm. Dent, Deputy Chairman.
C. C. Johnston, Managing Director.

(No. 125—Railway).

Government of India.—Public Works Department.—Railway.

To the Right Honourable the Secretary of State for India.

Sir, Fort William, 3 December 1867.

We have the honour to reply to your Railway Despatches, No. 30 of 1866, No. 18 and No. 60 of 1867.

2. The first of these asks the Government of India to re-consider the general terms that had been proposed to the Indian Branch Railway Company, and other Companies that had offered to undertake railways in India without guarantee. No further attention, we conceive, need now be paid to this subject, as Her Majesty's Government has since shown that the idea of being able to obtain capital for Indian railways without a guarantee has practically been abandoned. We enclose, however, a printed memorandum drawn up by Captain Williams, the Under Secretary in this Department, which contains a *précis* of the past history of railway construction in India, which may be interesting and useful for future reference.

3. The two later Despatches refer to the recent arrangements come to with the Indian Branch Railway Company respecting the projected lines of railway in Oudh and Rohilkhund. On this subject we beg to refer you to the several Minutes recorded by his Excellency the Viceroy, and the members of his council.

4. It will not be necessary for us to enter in detail upon the points discussed in these papers. The matters of chief moment may be briefly stated:—

1st. The apparent exclusion from the railways to be undertaken by the Company of certain lines which have been, and are still, considered by the Government of India of first-rate importance.

2nd. The character and extent of the control which should be exercised by the Government in this country over the construction and management of railways undertaken by help of a guarantee of interest.

3rd. The expediency of undertaking a general review of the probable future requirements of India for an extension of the railway system, and the manner in which such an extension could best be carried out, both as regards the lines to be selected, and the financial measures to be adopted.

4th. The importance of making arrangements for the ultimate transfer to the Government of India of the whole of the Indian railways constructed by English capital, with a view to the prevention of a too great investment of such capital in India.

5. There are various points of detail in the new contract to which your attention may, in the judgment of the Government of India, be usefully directed. They are sufficiently stated in the Minute of the Governor General. The suggested draft of a new clause to define the position of the Government in relation to the Post Office service, and the transport of troops, will be prepared and sent hereafter.

6. We enclose copy of a resolution which has been sent to the several Local Governments and Administrations, inviting an expression of their opinions on the subject of railway extension.

We have, &c.
(signed) *John Lawrence,*
G. N. Taylor,
W. N. Massey,
H. M. Durand,
G. U. Yule.

DOCUMENTS accompanying

1. Note by Captain E. C. S. Williams, dated 16th July 1867.
2. Minute by His Excellency the Governor General, dated 16th August 1867.
3. Minute by the Honourable Sir H. M. Durand, dated 20th September 1867.
4. Minutes by His Excellency the Commander in Chief, dated 12th January 1866 and 13th October 1867.
5. Minute by the Honourable Sir G. U. Yule, dated 18th October 1867.
6. Minutes by the Honourable G. N. Taylor, dated 19th July and 19th October 1867.
7. Public Works Department Resolution, Nos. 1050—60, dated 3rd December 1867.

Note by Captain *E. C. S. Williams*, R.E.

The Indian Guaranteed Railway System and its Results, with Suggestions for its Modification, as also for that of the System of Subsidy which the Government of India have desired to substitute for it.

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I.—System of Guarantee on which Railways have been encouraged by the Indian Government.

The following sketch of the guarantee system and its origin, as applied to railways in India, has been extracted from Mr. Juland Danvers' "Report on Railways in India" to the end of the year 1859:—

"Two private associations, under the designation of the 'East Indian' and the 'Great Indian Peninsula' Railway Companies, were formed in the year 1845,* but the projectors found it impossible to raise the necessary funds for their proposed schemes, without the assistance of Government. The application for this assistance led to a protracted discussion, which ended in the determination of the late Court of Directors of the East India Company to grant pecuniary assistance, in the shape of guaranteeing interest upon the railway capital.

"Railways are accordingly being constructed in India under what is popularly termed the 'guarantee' system, *i. e.*, through the instrumentality of Companies, who receive from the Government a guarantee of a certain rate of interest upon the capital expended, with the approval of Government, upon their undertakings. The direct pecuniary interest which, under this arrangement, the Government have in the success of each railway involved the necessity of some supervision and control, which is provided for in the contracts with the several Companies. The land required for the railway and works connected therewith is also given to the Companies, free of expense, by the Government.

Terms of the guarantee.

"The guarantee, which is for a term of 99 years, applies to all monies paid into the Government Treasury, and expended with the sanction and approval of the Government. When the capital account, which consists of expenditure so sanctioned, is closed, such portion of the subscribed capital as shall not have been required for the purposes of the undertakings is to be returned to the Companies.

"The railway Companies repay the amount advanced by Government on account of the guarantee from the profits of the railways, and the following arrangement is made for the application of those profits. The net† receipts from the railways are paid into the Government Treasury. If they amount to less than the sum due for guaranteed interest, such an addition is made to them from the revenues of India as makes up that sum, if they amount

† The gross receipts are.

* It appears that Mr. Vignoles had written a paper on Indian Railways, which was in the India Office many years before; and that Mr. G. T. Clark had, on the invitation of Sir George Arthur, visited Bombay in 1843 in view to the introduction of railways. Mr. Clark's scheme coalesced with that of Mr. Chapman, by whom the Great Indian Peninsula Railway Company was originated. In the same year, Sir Macdonald Stephenson visited Calcutta with a similar object, having endeavoured to draw public attention to the importance of undertaking railways in India since 1841. His mission eventuated in the construction of the present East Indian Railway from Calcutta to Delhi.

amount to more, half the excess is added to the dividend of the shareholders, and the other half is applied to the repayment of the sums previously paid by Government on account of guaranteed interest; if the receipts should not reach the amount paid for working and maintaining the railway, the deficiency is chargeable * against the guaranteed interest. If at any time the whole of the monies paid by the Government for interest (with simple interest † thereon) shall have been repaid and discharged, the Companies are entitled, so long as this is the case, to the whole of the profits.

* But this has not been done. The deficiency has been added to the debt on account of guaranteed interest, to be a first charge against surplus profits.

† The simple interest debt is, under the contract, the first charge against the share of excess profits.

"For example, if the railway, upon completion, yields a net profit of 4 per cent., the Government would have to add 1 per cent. (supposing the guarantee to be 5 per cent.) to make up the rate of interest guaranteed; if it yields a profit of 7 per cent., the Government would then pay nothing, but would receive 1 per cent., and the remaining 6 per cent. would be paid as dividend to the shareholders; and when by this process the whole of the sums previously advanced by Government (with interest) is repaid, the shareholders would receive a dividend of 7 per cent. If, on the other hand, the following should be the result of a year's traffic operations, viz., that the working expenses were 100,000*l.*, and the receipts only 90,000*l.*, 10,000*l.* of the sum paid by Government on account of the guaranteed interest would go to make up the deficiency, and the dividend to shareholders would be rateably reduced.

"The railway Companies have the power of surrendering the works at any time after any portion of the line has been opened for a period of three months, upon giving six months' notice to the Government, who would have to repay the whole amount that has been expended, with their sanction, on the undertaking.

"Government has the power, within six months after the expiration of 25 or 50 years respectively from the date of the contracts, of purchasing the railway at the mean market value in London of the shares during the three previous years.

"Government is entitled, in the event of the railway Companies failing to complete the railroads, or to work them satisfactorily, to take possession of them, repaying, within six months, the sums which have been properly expended.

"At the expiration of 99 years the land reverts to Government, and if the railway Companies have not availed themselves of the power of surrendering before that period arrives, the works also lapse to the Government, who would have to purchase the stock of engines, carriages, &c., at a valuation.

"In any case in which, under these provisions, the Government becomes bound to repay the capital, or to purchase the railway works and stock, it can, instead of paying the gross sum, declare its option to pay an annuity, to be reckoned from the time when the gross payment would be payable, and to continue during the residue of the 99 years, the rate of interest used in calculating such annuity being determined by the average rate of interest during the preceding two years received in London upon securities of the Indian Government.

"In addition to the powers above described, that of supervising the expenditure and all proceedings of the Companies (with the exception of communications with their law officers), as well as the right of selecting the line, was reserved to Government.

Fares and rates.

"With regard to the regulation of fares, they are, in the first instance, fixed with the approval of Government, and alterations in them can only be made by the railway Companies with the concurrence of the same authority. In the event of the profits exceeding 10 per cent., the Government can order a reduction in the rates, but not to such an extent as to bring the net receipts below 10 per cent. upon the capital expended.

"The railway Companies are also bound, under the contracts, to convey the mails and Post Office servants free of charge, to take military officers in first class carriages at second class fares, and soldiers when on duty in second class carriages at the lowest fares; also horses, guns, waggons, and military stores, &c., at the lowest rate for the time being chargeable for the carriage of such animals, goods, &c."

II.—Past and Prospective Progress of the Undertakings under the Guarantee System, with Particulars of Cost, &c.

Twelve distinct lines of railway have been undertaken by eight different Companies. The aggregate length of their sanctioned lines is 4,930 miles, of which, on the 31st December 1866, there were—

3,530 miles open for traffic, and
1,400 „ under construction.

At the close of 1865 there were 3,323 miles open for traffic.

The entire system will be open by the middle of 1870, when the chief cities of British India, including the Presidency and provincial capitals, will be linked together by railway communication, and Mooltan on the north-western frontier will be united with Negapatam in the extreme south of the peninsula of India, a distance in a direct line of 1,500 miles, by a continuous iron road upwards of 2,800 miles in length.

The expenditure up to the end of 1865–66 amounted to 60,236,000*l.*, of which 22,000,000*l.* was in England, and 38,236,000*l.* in India; and it is believed that the Companies have found difficulty in raising funds on only two occasions, viz., in 1861 and 1866, when

when the Government have advanced the necessary funds so as to prevent even a temporary suspension of the works.*

The gross amount advanced by the Government on account of guaranteed interest to the end of 1865 is close upon 16,000,000*l.*, the net amount about 10,400,000*l.*, the difference 5,600,000*l.* being the amount of net earnings, or profits, of the open lines. The net amount advanced involved a yearly charge against the Companies, for simple interest, of 520,000*l.*, and the debt already accumulated on that account was about 2,100,000*l.*

The cost of the controlling establishments up to about the same period (end of 1865–66) was 300,000*l.* after deducting 67,000*l.* for establishment for taking up land in Bengal and the North-Western Provinces. In other parts of India, the transfer of land has been effected by the civil establishments, and no debit has been made on its account.

In England, the cost of control, exclusive of office establishment, was 13,260*l.* up to the end of 1861, and may be estimated to have amounted to 23,000*l.* up to the end of 1865-66. In 1863, the cost of office establishment was roughly stated to be about 2,000*l.* a year. Assuming its cost from the first at 17,000*l.*, the control in England may be taken approximately at 40,000*l.* up to 1865–66.

Thus the total cost of Government control has been about 340,000*l.* during 17 years, or somewhat under three-fifths per cent. of the capital expended. In other words, the cost of the Government control has been about 100*l.* per mile opened, and this may be accepted as the probable cost per mile over the whole of the present system when completed.

The cost of land made over by the State without charge to the Companies was 1,441,000*l.* to the end of 1865–66, exclusive of the cost of taking up and transferring it, and of land made over in Bombay, the cost of which is debitable to the special fund. In Bengal and the North-Western Provinces, the expense of taking up the land has been about 11 per cent. of its actual cost, and applying the rate to other parts of India, the total cost of establishment for the purpose has been about 159,000*l.*, making up the entire charges on account of land to about 1,600,000*l.* The sanctioned estimate for the current year (1866–67) amounts to 360,000*l.*, and it will not be excessive to assume that by 1870 the charges on this account will have aggregated 2,500,000*l.*, thus averaging about 500*l.* per mile. This average is swelled by the heavy cost of the land for the terminal stations required by the trunk lines converging on the chief cities of the three Presidencies, so that for other lines, as projected, the cost may be less; but, on the other hand, the value of land is daily increasing.

The total capital outlay required to complete the system is now estimated at 81,000,000*l.*, including the doubling of a certain length of various lines. Of the 21,000,000*l.* remaining to be expended, about 8,000,000*l.* may be laid out in England, and the remainder in India. The average cost per mile of railway will be about 16,500*l.*, of which about 1,600*l.* are for freight and insurance from England to India. For the single portion the cost will average 14,800*l.* (say 15,000*l.*), and for the double portion 19,700*l.* (say 20,000*l.*).

The capital outlay will in reality be larger than this, having been supplemented by a contribution by the State of one-eleventh of the amount laid out in India, or of 4,636,000*l.*, by reason of the exchange being fixed under the contract at 1*s.* 10*d.* the rupee. This represents an average contribution of 940*l.* per mile.

The gross advances of guaranteed interest may be expected to aggregate 30,500,000*l.* at the beginning of 1870; the net advances 14,000,000*l.*, the yearly charge for simple interest on which will be 700,000*l.*

The simple interest debt at the same period may be about 4,350,000*l.*, after allowing for its abatement by the moiety of surplus profits on some lines to the extent of 800,000*l.*

Further, it may be expected that the net receipts in 1869 will amount to 3,700,000*l.*, of which 2,900,000*l.* will cover the interest on the capital expended on seven-tenths of the system, and one moiety of the remainder will accrue to the Government and cover the interest on eight millions more of capital. Moreover, the net gain by exchange in 1869 may be about 245,000*l.*, which will cover the interest on nearly 5,000,000*l.* more, so that the State will have to meet the entire guaranteed interest on only about eight and one-third millions in that year.

The probable demands on the State on account of guaranteed interest, till the system is completed, have been estimated as follows:—

1. YEARS.	2. Total Guaranteed Interest.	3. Net Receipts.	4. Moiety of Surplus Receipts Payable to Shareholders.	5. Net Receipts Retained by Government.	6. Net Advances on account of Guaranteed Interest.	7. Net Advances, including Loss or Gain by Exchange.
	£.	£.	£.	£.	£.	£.
1866 - - -	3,200,000	2,100,000	85,000	2,015,000	1,185,000	1,448,636
1867 - - -	3,550,000	2,750,000	100,000	2,650,000	900,000	1,013,636
1868 - - -	3,812,000	3,200,000	215,000	2,985,000	827,000	763,364
1869 - - -	3,962,000	3,700,000	400,000	3,300,000	662,000	416,545
1870 - - -	4,035,000	4,000,000	500,000	3,500,000	535,000	216,819

* Up to the end of 1866 the amount expended was 24,706,279*l.* in England, and 41,327,179*l.* (partly estimated) in India, or 66,033,458*l.* in all.

The exchange transactions have been estimated thus:—

1. Years.	2. Estimated Indian Expenditure.	3. Gross Loss by Exchange.	4. Gross Gain by Exchange.	5. Net Loss by Exchange.	6. Net Gain by Exchange.
	£.	£.	£.	£.	£.
1866 - - -	5,000,000	454,545	190,909	263,636	—
1867 - - -	4,000,000	363,636	250,000	113,636	—
1868 - - -	2,500,000	227,273	290,909	- -	63,636
1869 - - -	1,000,000	90,909	336,364	- -	245,455
1870 - - -	500,000	45,455	363,636	- -	318,181

The third column in this table is one-eleventh of the second column of the same table, the fourth is one-eleventh of the third column of the previous table. The last column of the first table is derived with the assistance of the fifth and sixth columns of the second table.

The subjoined Table exhibits the actual and estimated Progress towards Completion of the several Guaranteed Railways in India:—

RAILWAYS.	Year in which Commenced.	Length of Line open at End of the Years														Estimated Lengths that will be Opened at End of the Years				Total Length of present System.
		1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	
East Indian (Main Line).	1851	–	38	121	121	121	141	284	368	561	884	937	1,106	1,129	1,129	1,129	1,132	1,287	1,287	1,287
East Indian (Jubbulpore Extension).	1863	–	–	–	–	–	–	–	–	–	–	–	–	–	–	223	223	223	223	223
Eastern Bengal -	1859	–	–	–	–	–	–	–	–	–	110	110	110	110	110	110	110	155	155	155
Calcutta and South-Eastern.	1859	–	–	–	–	–	–	–	–	–	15	28	28	28	28	28	28	28	28	28
Punjab - - -	1859	–	–	–	–	–	–	–	–	–	32	45	45	253	253	253	253	253	253	253
Madras S. W. Line -	1853	–	–	–	65	81	96	96	137	271	407	407	492	492	492	492	492	492	492	492
,, N. W. ,,	1859	–	–	–	–	–	–	–	–	27	41	41	79	119	153	153	213	213	329	329
Great Southern of India.	1859	–	–	–	–	–	–	–	–	49	79	79	79	79	127	167	167	167	167	167
Great Indian Peninsular.	1850	22	35	51	89	89	195	246	298	438	495	553	586	702	823	964	964	1,185	1,273	1,273
Bombay, Baroda, and Central India.	1856	–	–	–	–	–	–	–	35	132	185	185	306	306	306	306	306	306	306	306
Sindh - - -	1858	–	–	–	–	–	–	–	–	105	105	105	105	105	109	109	109	109	114	114
Delhi - - -	1864	–	–	–	–	–	–	–	–	–	–	–	–	–	–	91	175	296	303	303
TOTALS - - -		22	73	172	275	291	432	626	838	1,583	2,353	2,490	2,936	3,323	3,530	4,025	4,172	4,714	4,930	4,930

Particulars of each of these undertakings will be found in the "Statement of the Moral and Material Progress of India for 1864-65," pages 27 to 33 (published in 1866).

The following Table exhibits the Progress of Railways in India compared with other Parts of the World, as also the Mileage open compared with Area and Population.

COUNTRIES.	Year in which Railways worked by Locomotives were first opened.	Total Length in Miles open in			Per Mile of Railway open in 1865-66.		Average Cost per Mile, excluding State Assistance.	REMARKS.
		1845.	1852.	1865-66.	Square Miles.	Population.		
							£.	
England and Wales	1830	?	?	9,251	6·25	2,186	41,033	
United Kingdom	1830	2,240	6,890	13,289	9·11	2,195	34,300	First class, and 57 per cent. of double line.
United States	1832 (?)	4,522	11,027	35,361	45	866	7,800	The greater part of single line, and not solidly constructed.
France	1832	545	2,398	8,113	26	4,607	28,800	A very large proportion of single line.
Germany	1834–35	1,941	5,097	12,321	33	5,298	16,400	About one-fourth of double line.
Belgium	1835	347	720(?)	1,350	8	3,625	21,546	
Russia	1838	122(?)	?	1,862	–	–	?	
Italy	1839	?	?	2,389	41	9,084	?	
Holland	1848	Nil	?	372	29	9,066	?	
Denmark	1849	„	?	470(?)	–	–	?	
Switzerland	1849	„	?	778	19	3,257	?	
Spain	1849	„	?	2,721	67	5,991	?	
Sweden and Norway	1852	„	10	830	–	–	?	
Portugal	1854	„	Nil	419	87	8,555	?	
Turkey	?	„	?	81	–	–	?	
British North America	?	?	?	2,539	136	987	?	
Central and South America	?	?	?	550(?)	–	–	?	
British India	1853	Nil	Nil	3,323	287	43,537	16,500	Eventual probable cost; one-third about being of double line.

It was not till 1845 that the projection of railway communications received any great impetus in any part of the world. In France this did not occur till 1852, and it is since the Crimean war that Russia has turned her attention to the matter in earnest.

Schemes for railways in India were brought forward in 1845, but, as already explained, the discussions which ensued as to the form in which they were to be encouraged by the State delayed their actual initiation, and it was not till 1855 that the network of trunk lines, planned by Lord Dalhousie in 1853, was vigorously commenced upon.

Considering the distance of India from the base of supply of the staff, materials, and stores, required for the construction of railways; the climatic hindrances to speedy execution; the convulsion that India passed through in 1857; the fact that each mile of railway has, on the average, required the freight of a separate vessel and about 600 tons of materials from Europe, and that 1 per cent. of the vessels so employed has been lost; that the cost of freight and insurance has averaged about 40 per cent. of the value of the materials imported, or about 1,600*l.* per mile; and, finally, that the works have been carried out, not under the immediate supervision of an active and responsible direction, but by a paid agency under the control (frequently regarded as antagonistic) of Government officials, the general average rate of progress and of cost compares fairly with Europe. Setting off the contributions of the State, in the way of land and exchange, against the freight and insurance of materials from Europe to India, the cost will average 16,500*l.* a mile, notwithstanding the excessive cost of the East Indian Railway in Bengal, and of the Bombay, Baroda, and Central India, the Calcutta and South Eastern, and the Sindh lines.

The cost per mile, laid with a single line of rails, will average 15,000*l.* Some lines, such as the Punjab and the Great Southern of India, have already been constructed for less than 10,000*l.* These were carried out by the engineers of the Companies, either directly or with the aid of local petty contractors, *i. e.*, departmentally, and, as yet, have

been stocked for a small traffic only. It may be regarded as very improbable that any Indian line will ever be constructed cheaper than the Great Southern of India. The Eastern Bengal, constructed by English contractors, has cost about 15,000 *l.* a mile. The Madras Company's lines have been constructed for less than 11,000 *l.* a mile. The Great Indian Peninsula Company's lines have, as yet, cost about 13,500 *l.*, including the heavy ghât inclines.

The Delhi and Jubbulpore lines (both under contract) are estimated to cost less than 15,000 *l.*, and the North-west Division of the East Indian Railway (main line) has been constructed, departmentally, for about that sum. The average of all these would be about 13,000 *l.* a mile. The average cost of lines constructed since 1848 has been, in England 14,559 *l.*, in Scotland 7,244 *l.*, and in Ireland 7,303 *l.* per mile, but in England a double line of rails is more frequently provided.

It will be convenient to sum up briefly the chief particulars concerning the trunk railways of India carried out under the guarantee system.

They aggregate about 5,000 miles in length.

They were commenced experimentally in 1850, but not on a large scale till 1855, and some of them were not begun till 1863–64.

They will be opened throughout in 1870.

The rate of progress since 1855 will have averaged 300 miles opened yearly.

The average cost will be 16,500 *l.* per mile.

The total capital outlay will be 81,000,000 *l.*, of which 30,000,000 *l.* will have been spent in England, and 51,000,000 *l.* in India.

The actual outlay of the State will be 7,628,000 *l.*, or 1,540 *l.* per mile, viz.:—

Control - - -	100 *l.* per mile.
Land - - - -	500 *l.* „
Loss by Exchange - -	940 *l.* „

* The gross advances by the State, on account of interest on capital, will be about 30,500,000 *l.*

* The net advances, after deducting the profits realised on open lines within the period, will be about 14,000,000 *l.*, a sum equal to about one-sixth of the capital, or about 2,840 *l.* per mile.

The debt to the State on account of accumulated simple interest on the advances will be about 4,350,000 *l.*, or 880 *l.* per mile, and the yearly charge on account of simple interest on the advances will be 700,000 *l.*

The State will probably have to meet the interest on only eight and one-third millions of the total capital in 1869.

The outlay of capital was a maximum in 1860, when it amounted to about seven and a half millions. In 1866 the outlay again approached this sum.

The sum advanced by the State on account of guaranteed interest, less net receipts, was a maximum in 1863 and 1864, and amounted to about one and a half millions in each year.

The profits on two of the lines, the East Indian and Great Indian Peninsula, exceeded the guarantee in the first half of 1866.

The pecuniary benefits derived by the State are—

(1.) The gain by exchange on the profits.
(2.) The transport of the mails free.
(3.) „ of troops and stores at reduced rates.

The gain by exchange has been calculated to be an annual profit to the State, on the whole capital, of one-tenth of the shareholders' profits. Thus, when the latter are 5 per cent., the profits to the State would be half per cent. on 81 millions, or about 80 *l.* per mile of the whole system.

The transport of the mails free, and of troops, &c., at special rates was estimated to have saved the State 200,000 *l.* in 1864; or a little less than two-fifths per cent. of the capital expended up to the end of that year. Regarding it in another way, the average saving per mile of railway open was 44 *l.* for mails and 31 *l.* for troops and stores, or 75 *l.* for both.

Generally, it would seem that in considering any development of the existing system of railways, we may proceed on the following data:—

The first section of a railway up to 100 miles in length can generally be opened in India within four years from date of turning the first sod.

Other sections can thereafter be opened at the rate of 100 miles per annum.

Sections may be opened when about 85 per cent. of their total cost has been laid out, and

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* These sums are exaggerated, it is believed, by the interest on the large sums deposited by the Companies in excess of their immediate wants.

and they will ordinarily be completed within six years from date of commencement at the following annual rates of outlay:—

Preliminary expenses	-	-	2 per cent. of the total cost.
1st year	-	-	20 „ „ „
2nd „	-	-	33 „ „
3rd „	-	-	20 „ „ „
4th „	-	-	13 „ „ „
5th „	-	-	7 „ „ „
6th „	-	-	5 „ „ „

The interest on the total capital expended on any section of line may be expected to amount to 12 per cent. thereof before it is opened, and the net demands on the State for interest under a guarantee during the first few years may be expected to be somewhat as follows, it being understood that capital paid up in excess of present wants is not permitted to remain idle:

In the 1st year	-	1¼	per cent. of the cost,	excluding interest	during construction.
„ 2nd „	-	2½	ditto	ditto	ditto.
„ 3rd „	-	3½	ditto	ditto	ditto.
„ 4th „	-	4¾	ditto	ditto	ditto.
„ 5th „	-	4	per cent. of the cost	including interest	during construction.
„ 6th „	-	3·5	ditto	ditto	ditto.
„ 7th „	-	3·3	ditto	ditto	ditto.
„ 8th „	-	2·9	ditto	ditto	ditto.
„ 9th „	-	2·4	ditto	ditto	ditto.

In the fifth year the section would be opened, and it may be expected, from the results obtained on the present lines, that the net receipts on its cost would amount to

0·8	per cent.	in the first year.
1·5	„ „	second „
1·7	„ „	third „
2·1	„ „	fourth „
2·6	„ „	fifth „

Omitting the lines which have been exceptionally costly, the average cost of the present system with a single line of rails has been 13,000 *l.* per mile. Reducing this by 15 per cent. (*see* note to Section III.), the cost of future ordinary lines might be reckoned at 11,000 *l.* per mile, and the Government, or an uncontrolled Company acting with the energy of private enterprise, might construct them for that sum. It would be safer to assume that they may be constructed for 12,000 *l.* per mile, on an average, under a modified guarantee, the formation being for a double line as at present. On this assumption the cost, excluding any contribution by the State in the way of exchange, would be 12,600 *l.*; including interest during construction, 14,100 *l.*; including cost of land, 14,600 *l.*

The cost of laying down a second line of rails may be taken at 5,000 *l.* a mile.

III.—Supervision Exercised by the Government in Virtue of the Guarantee, and alleged ill Effects of it.

The following further extracts from Mr. Danvers' Report for 1859 show the nature of the supervision exercised by the Government for the protection of the public interests:—

"The supervision is exercised by the Government both in this country and in India. An Official Director is appointed, who attends each board of the railway Companies in London, and possesses, under the deed of contract, a power of *veto* on all the proceedings of the directors. * * * At the same time, questions involving expenditure, which have not been considered by the local governments in India, and all matters of importance, are referred to the Secretary of State for India in Council, with whom also the financial arrangements of the Companies are made.

"The supervision in India is exercised by the Government, principally through officers appointed for the purpose, the following rules having been established with the view of preventing delay and collision.

"1st. All questions of general importance shall be referred to Government for decision.

"2nd. Under the above will be included the general direction of all lines of railway, the position of stations, the general arrangements of the more important stations and works; but after the general sanction of the Government has been given to any project, all questions of detail may be disposed of, within the limit of the original sanction, by the consulting engineer.

"3rd. All matters of routine, or payments, or acts in accordance with rule, precedent

cedent, or special agreement duly sanctioned, or undisputed contingent expenditure, may be dealt with by the consulting engineer without reference to Government.

"4th. All designs, estimates, and indents, whether for works or for establishments, for carrying into effect objects already generally sanctioned by Government, may also be disposed of finally by the consulting engineer.

"5th. The consulting engineer may, without reference to Government, reduce the amounts of indents, or direct designs or proposed operations to be modified, if he thinks it necessary; but the Agent in such cases, if dissatisfied with the decision of the consulting engineer, may always request that the matter may be referred for the final orders of the Government.

"6th. In all cases in which the consulting engineer has any doubt as to the decision to which he should come, the question should be referred to the Government for orders.

"7th. When the sanction of the consulting engineer is given to any proposals of the Agent, in which both of these officers concur, excepting in those matters of great importance specially excepted above, the sanction so given shall, so far as the Government is concerned, be considered final.

"8th. The consulting engineer shall submit to the Secretary of the Government a weekly schedule of his proceedings, in the usual form, in which shall be explained concisely the nature of all sanctions or directions given under the authority now granted to him."

It has been alleged that this necessary control of the Government has been a cause of delay in the commencement and construction of the works.

"So much importance was attached to these allegations, that a Committee of the House of Commons was appointed in 1858 'to inquire into the causes that have led to the delay.' The Committee sat from the 3rd May to the 8th July. They classified the causes of delays into four distinct heads, viz.:—

"1st. Those arising from Government supervision at home and in India.

"2nd. Those incidental to the execution of extensive and complicated public works, under such circumstances, in a distant country.

"3rd. Those produced by political causes, such as insurrection and mutiny.

"4th. Those arising from the natural difficulties which the face of the country presents.

"The Committee came to the conclusion that 'though some cases have been cited in which the Government superintendence has been productive of vexation and annoyance to the railway officials,' 'no very material delay in the construction of the various lines appears to have resulted therefrom.' They believed 'that the progress of railroads under construction in India will bear favourable comparison with that of English lines.' They considered that the main impediments to progress consisted in the necessity of transporting the materials from this country, the difficulties of conveying them to their destination when they reached India, the effect of the climate upon European constitutions, the failure of contractors, and the lengthy correspondence between the directors in London and their agents in India, and the various Government departments. They showed that the Sonthal rebellion in 1855, and the subsequent mutiny, were productive of most serious delays; and that the natural features of the country present formidable difficulties, and involve the construction of vast works, which necessarily postponed the completion of the whole lines."

"In conclusion, they stated, 'your Committee are of opinion, first, that the Government has acted wisely in committing to private enterprise the execution of these great public works; secondly, that a guaranteed interest on the requisite capital was indispensable to induce the public to invest their money in undertakings of this magnitude and novelty; and thirdly, that, in order to protect the Indian revenue from undue expenditure, Government control over the railway operations is requisite, and even valuable, to the interests of the shareholders themselves. At the same time, your Committee would observe that under a system complicated in its character, and necessarily somewhat cumbrous in its machinery, a system, moreover, the greatest defect of which is the facility it affords for the evasion of responsibility, a clear and distinct definition of the duties, responsibilities, and extent of jurisdiction of all heads of departments, and those under them, is essentially requisite for its smooth and successful working; always assuming that due care be taken to entrust discretionary power only to men who are to be relied on as competent to distinguish an effective general control from too minute an interference in details. By a judicious adherence to the spirit rather than the letter of the contract, your Committee feel assured that arrangements may be simplified, united action for one common object secured, and railway enterprise in India may before long assume proportions commensurate with the vast commercial, agricultural, and mineral resources of that country.'"

Recently, the control has been facilitated by meetings for the dispatch of business between the Government and railway officers, and a more effective, and, as respects the Companies, a less troublesome system of audit has been introduced.

Opinions

Opinions were expressed before the Select Committee that, had the Companies been uncontrolled by the State, the works would have been constructed at less cost. These opinions were held by gentlemen connected with the Companies. On the other hand, it was held by those officers of the Government, who had been in control of the railways, and who were examined, that the work might have been constructed more economically by the direct agency of the Government, so that on all sides it was considered that the cost had been enhanced by the nature of the connection between the State and the Companies.

This enhancement of cost was generally attributed by the non-government officials to the undue and prejudicial minuteness, leading to irritation, and producing depression in tone of energy from absence of responsibility, with which the control of the Government had been exercised. This was felt to be the case more where the works were carried on departmentally, *i. e.*, by the Companies' engineers, and not by contractors. Friction arose, the Companies' officers being then in the same position with reference to the Government officers, as the contractors' people are with regard to the railway officers when works are done by contract.

The directors of the Great Indian Peninsula Railway Company, in a letter dated 14th November 1864, to the Under Secretary of State for India, have stated "that the loss arising from the control of Government over guaranteed lines is variously estimated up to one-third of the whole outlay on those undertakings, and it is within the knowledge of the directors that in the case of the great Indian Peninsula Railway it has been very considerable."

The statement is indefinite, and does not admit of close examination.

More than one-third of the expenditure on Indian railways has taken place in England, and chiefly on materials, in the purchase of which it is not apparent how the control of Government can have caused loss. It must therefore be concluded that the loss is considered to have occurred in India. Now, a loss of one-third of the whole outlay is a loss of one-half of the Indian outlay. The statement that such a loss has occurred as a consequence of an ill-administered Government control, is as incredible as is the statement that Government could have constructed the works for half the sum they have cost.*

The Great Indian Peninsula Railway Company, through their Secretary, expressed themselves very favourably in regard to the manner in which the Government control had been exercised in India, before the Committee of 1858, and did not hint at the cost of their works having been augmented through it. It may be confidently affirmed that whatever faults may have attended the control in earlier years, that control has been exercised more intelligently, and more in accordance with the spirit and intention of the contract in each successive year. In favour of this view, it may be mentioned that it was stated in evidence before the Committee, that the eminent contractor, Mr. Brassey, would not tender on account of the minute and universal supervision of the Government, and the conviction that they regarded the whole question in an insufficiently comprehensive view. Since then Messrs. Brassey & Co. have executed one large contract, and are at present engaged upon at least two others.

IV.—Objections urged against the Guarantee System in General, and as applied in India.

"The most obvious objection" to the system of unlimited guarantee in force in India "is the financial one, that there is no limit to the sum that may be invested in railways, and so no limit to the liabilities to which the extension of such works under a system of guarantee might lead."

"The guarantee being without limit, it leads, in spite of the best intentions, to the removal of much of the check on proper economy in construction. It being usually advantageous to invest at par under a Government guarantee of 5 per cent., it becomes at the same time directly advantageous to invest the largest possible amount in such a stock. Hence, so long as the works are under construction, and the general state of the money market keeps a guaranteed stock of this sort above par, there is a direct inducement to the Railway Board to spend as much money as possible on their works, instead of the

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* On this point, it may be here remarked that the railway rates throughout India have, on an average, been in excess of the rates of the Public Works Department, for earthwork 17 per cent., for masonry 54 per cent. The average ratio of the Indian to the total expenditure, has been 63 per cent. The earth and masonry works have averaged 42 per cent, of the total cost, the earthworks, including fencing, absorbing 15 per cent. thereof; so that the cost of earth and masonry works together would, at deparmental rates, be only 31 per cent. of the total cost that has been incurred. There is not much room for economy in the remaining items of Indian expenditure; but allowing for a saving of 20 per cent. on their cost, the entire outlay would be reduced by 15 per cent., and the ratio borne by Indian to total expenditure would be 56 per cent. of the reduced outlay that would be incurred, of which 36 would be for earth and masonry works.

It is shown in the second section of this note that the cost per mile of single-rail line of the present system will be about 14,800*l.* on all. A reduction of 15 per cent. thereof would bring down the cost to 12,600*l.*

the exact reverse. Next, the unlimited nature of the guarantee further forces the Government, with a view to keeping down its liabilities, to enter upon a very close scrutiny of all the expenditure, and to attempt to replace from without those internal incentives to economy, which cease to be effective from the cause just explained. Practically, however, the Government control is not very successful in keeping down expenditure, while it leads to the exercise of a constant interference on the part of the Government with the railway Company's officers, which produces a mischievous effect by weakening their proper sense of responsibility, and obstructing their freedom of action, besides causing much administrative annoyance and complication."*

The late Lord Canning had, in 1858, objected to the present operation of the guarantee system, or in reality to the details of the guarantee conceded rather than to the principle of a guarantee, and had proposed, as a remedy, that a strict limit should be placed upon the capital to be guaranteed for any undertaking, and also upon the time to be allowed for its completion. Sir J. P. Grant, then President of the Council, in the absence of the Governor General from the Presidency, had objected radically to the principle of guarantee, as well as to its present working, as will be seen from the following extracts from his Minute, dated 4th September 1858:

"I entirely agree in this proposition of his Lordship. I also am strongly impressed with a sense of the disadvantages which in practice (and, I would add, in reason) attach to the guarantee system. On this very important subject, I would beg to refer to the following paragraphs of my Minute† on the Eastern Bengal Railway, in which my general views of the subject of the duties of Government in respect to railway extension in India are explained:

† Dated 5th May 1857.

"'I contend that, where Government is convinced that on the highest commercial, social, military, and political considerations, a particular railway is greatly wanted by the country, and will be, if under the general control of Government, a directly remunerative work, it is not proper to leave it to any set of capitalists to say whether the country shall have that want supplied or not. I cannot see how a Government can leave it absolutely to private persons to rule what railways shall be made, and what shall not, consistently with its duty to the people, any more than it could abandon the ordinary highways similarly to their fate; for railways now are exactly what main highways were. England has bitterly to repent that it left its new highways, like private speculations, to capitalists looking after their own interests; nor have the capitalists reason to rejoice.

"'My own opinion is, that whatever may be the case as to the working of a railway, the construction of a railway extending beyond a man's own estate, ought in every country to be treated in principle as a national work, to be judged on national considerations. And this is the conclusion of Europe, based upon the dear-bought experience of England. But most of those who may differ from this principle in a country of capitalists will accept it for a country so far separated from the capitalists that the course of post between the two takes three months. Either our Indian railways must be constructed by Government with public money, which is a system that has been determined against, or they must be constructed with the money of English capitalists. Here then, at once, we have a fundamental difference between English and Indian railways. A managing board sitting in London can very well overlook a railway with a terminus in London; but how can it rationally expect to overlook, unless the local Government will come to its help, a railway whose nearest terminus is in Calcutta. It may have a delegated management in Calcutta, but it can no more effectively manage its delegate, than it can manage the railway itself. Life and health are so precarious in India, that the evils of a distant agency for the transaction of a gigantic business are tenfold greater than usual where that agency is in India. I state it as the conclusion I have drawn from what has passed under my own eyes for some years during which I have given watchful attention to the subject, that the rapid commercial success of the East Indian Railway Company's experimental line would not have been achieved without the general control of Government, exercised through its able and indefatigable consulting engineer.'

"* * * Writing in 1853, his Lordship (Lord Dalhousie) added that the experience of the working of the system in Bengal had been quite satisfactory as far as it had gone.

"Writing in 1858, I think no one connected with the working of any of the guaranteed Companies will still contend that the system works satisfactorily. It is only because in the successive officers employed on both sides we happen to have had generally in Bengal remarkably sensible, well-disposed gentlemen, that things have gone on here as well as they have done. But here the inconveniences and evils have been considerable, and elsewhere the practical result has been a great deal worse. My conviction that the control of Government has been in a great measure instrumental in bringing about the success of the line now opened has been already stated. But although this control is an essential part of the present system, and without it a guarantee system is impossible, the double management is a great evil. The necessity of submitting to so great an evil is the vice of the system. There is in consequence an antagonism, more or less overt, established from the outset between the railway Company's officers and the controlling officers of the Government, which is pernicious. With precisely the same establishments, the same agent, the same engineers, the same subordinates, if the execution of the works were at once transferred to the Government, this antagonism would cease. All disposition to question the orders of Government would come to an end; good feeling and confidence would be fostered; while nothing that is good in the present system would be lost. The energy with which the works are prosecuted, so far as the railway Company is concerned, is solely dependent on the exertions of the Company's servants in India; and there is no reason to think that the Government would be less well served than the railway Company.

"It is not to be denied that even where the railway system of control has worked most harmoniously,

* Extracted from a "Memorandum regarding the proposed Construction of a Railway from Delhi and Agra to Jeypore, to be called the Rajpootana Railway."

harmoniously, there have been some unavoidable obstructions to progress. The division of authority and responsibility, however, acts far more injuriously than any direct obstruction. Men who would work vigorously under a more natural and simple system, often become disgusted where the checks essential to any system of close Government control are brought to bear on them.

"It is nonsense to suppose that any set of men could be allowed to work with public money unchecked. The money under the guarantee system is *de facto* public money; the shareholders are *de facto* lenders to a Government loan. The contingency of drawing more interest than the guarantee insures, may have the sort of effect the lottery has in inducing people to subscribe; but it would be insanity to expect that such a contingency will make the same sort of people careful of money which is not their own, and which is to be spent 10,000 miles off, who have wasted many scores of millions of their own money in works executed before their eyes. Mere decency must force any Government to secure the Bengal ryots against having to pay for Thames Tunnels, Victoria Bridges, and commercial speculations of that order.

"A check, and a real check, then, there must be. The Consulting Engineer, to do his duty in his place, and the Government to do their duty in their place, must insist on all projects or proposals for expenditure being placed before them in such a manner as will carry conviction that the project, or the expenditure, is not only suitable, but necessary. The responsibility of this inquiry cannot be shifted. If the works were executed under the direct management of the Government, this necessity would at once cease. The Agent and the Chief Engineer would at once take up their proper stand as highly trusted officers. They would feel their positions greatly improved, and their work could not fail to be better performed. Nor would the security as regards the careful expenditure of money be in any way relaxed; for that control would be exercised at once in behalf of Government, which is now brought to bear as a secondary process, not always with success.

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"One would suppose that a system so artificial and complicated, so contrary to received principles, so full of vexation in practice, must have some very strong financial recommendations to have induced the authorities to adopt it. At the present time when, not to speak of the reason of the thing, the very cant of the day is running against double government, one would suppose that nothing but State necessity could have forced upon us the system of double government in all great Indian joint-stock concerns, which is what appears to be the fate we are threatened with. But objectionable as the working of the guarantee system may be in the eyes of many, that is nothing as compared to the financial objections, which nobody can dispute. The system is, as I have said, really the raising of money by a special public works loan; but under conditions the most disadvantageous possible for the people who must be taxed for the payment. The money, generally speaking, is not raised at a guaranteed minimum rate of interest less than that of the open loan of the day. Instead of the repayment of principal being at the option of Government, and the lender having no right to claim repayment, by this system the Government cannot repay the money, whatever may be the loss by keeping it, and the lender can at any moment reclaim it or an equivalent annuity, whatever may be the financial position of Government at the time. Then, if the public work on which the money is expended fails, the Government bears the whole loss, and the lender is saved harmless; but if it succeeds the Government has no profit, the lender has the whole. A man who, for the sake of a work upon his own private estate, should raise the money on these terms, whilst the money market was open to him on the ordinary terms of mortgage, would be insane. A court of equity would permit no manager of another person's estate to act thus. How is it that the Government, which is but the trustee for the people, can honestly do this very same thing?"

The Right Honourable S. Laing, in his Minute of the 1st April 1861, expressed himself unfavourably of the guarantee system as applied in India, in these terms:—

"In India there are two circumstances which mainly affect the consideration of the guarantee system:

"1st. That the management is non-resident.

"2nd. That the data of cost and traffic are so uncertain, that the Companies look almost exclusively to the guarantee.

"These two facts go far to neutralise all the advantages of private enterprise.

"Why is private enterprise, as a general rule, better than Government agency?

"Because all the resources of experience, and all the stimulus of self-interest are brought to bear upon affairs untrammelled by official rules and routine.

"Because there is unity of management by men who understand their business, and who stand or fall by its success.

"But in the case of a large joint-stock Company, this is a good deal weakened, and many Companies have managed no better than Government would have done, even when the affair was under their own eyes.

"Still, as a general rule, it may be admitted that, under ordinary circumstances, and in commercial matters, joint-stock management is as superior to that of Government as individual management is to that of a joint-stock Company.

"But when the Company is 5,000 miles off, and the guarantee absolute, none of these considerations apply.

"What conceivable inducement have the engineers and agents of these Companies to do their work economically? Even the shareholders have the faintest possible interest in it, for they have their 5 per cent. in any case, which is all they ever looked to. But the interests of all practically concerned in carrying out the work are the other way.

"Without imputing positive dishonesty, for which there is great scope, and of which I am led to believe, from many things I hear, there has been a great deal among the lower class of employés, the directors at home like the patronage of buying millions' worth of rails and rolling stock, and freighting thousands of tons of shipping. The Engineer here, like all Engineers whom I ever heard of, likes doing his work well and expensively as long as anyone will find the money. Why should he risk his professional reputation by building a slight bridge, or a mean station, when Government are good enough to guarantee 5 per cent. on the money requisite to enable him to do something worthy of Brunel or Stephenson?

"Why should he hurry on work when the result of completing the railway will be to deprive him of a post of importance and emolument.

"I do not doubt that there are many men who do their duty in such cases, though against their interest. Happily, there are always such to be found among Englishmen. But it is a bad system where the whole of the Agents, through whose hands passes the expenditure of some 30 or 40 millions of money, have their interests pulling one way and their duty the other.

"And even if resolved to do his duty, how stands the Company's Engineer as compared with a Government Engineer in India?

"He knows nothing of the country, and has to purchase all his experience. Except in the case of railways, he knows nothing of the special sort of work to be done.

"He has not the advantage of Government authority, which in many cases goes a great way in India. In short, the balance of advantages seems to be, for the Government Engineer, perfect probity, knowledge of the country, influence of a Government Officer.

"Against him—

"Perhaps a little less special knowledge of some points connected with railways, and a little more rigidity and formality in his mode of doing business.

"But these latter advantages, if important, can readily be secured, as it is just as easy for the Government as for the Company, to employ a Railway Engineer.

"Another great evil of the present system is the divided control. With an absolute guarantee, the Government must, in self-defence, exercise a very considerable control over the expenditure of what is virtually its own money.

"But in cases of this sort the only real control is to be able to send every one about his business who *neglects his duty*, or who *fails*. No man should have the spending of a sixpence of our money to whom we cannot say, 'Now, mind, this is what you have undertaken to do, or get done, for this money, and if you don't, you may be a very good sort of man, but you don't suit us.'

"This, with liberal treatment of those who do succeed, is the only way of getting work of this miscellaneous sort well done; and here the Company system stands directly in the way, and introduces, wheel within wheel, divided responsibility and diplomatic correspondence, when there ought to be prompt action."

In forwarding this Minute to the Secretary of State (Despatch No. 68 of 27th July 1861), the Government of India expressed their concurrence in Mr. Laing's views as to the absence of real control where there was no direct authority over the staff, extending to dismissal, if necessary; and supported his suggestion that advantage should be taken of the extension of any aid to the Companies in the raising of capital (then, as now, a difficulty with some Companies) to improve the position of Government in relation to the Companies receiving it; to bring the Government, through its controlling Officer, into a position of more direct authority over the operations; to secure to the Government that power of dismissal, without which there is no real control; and to amend, if possible, some of the most troublesome articles of the contract. At the same time, the Government dissented from Mr. Laing's views that the system of absolute guarantee had proved a failure in India, and expressed their hearty conviction that the Chief Engineers had generally risen superior to the feeling alluded to by Mr. Laing. But as to the extension of Companies with an absolute guarantee, there was no difference of opinion. The evils were unanimously admitted, but the Government deliberately recorded that the results achieved in the last 10 years would not have been achieved so fully and promptly without a guarantee, and were of opinion that it was possible so to fence the guarantee as to avoid the more serious evils.

In a recent letter to the Secretary of State for India, Mr. Knight, of the "Times of India," has condemned the guarantee system in the following words:—

"The drawbacks to the guarantee system are patent to the world. We have divided responsibility, and incessant clashings, delays, and ruinous expense as the result. The guarantee deadens the interest of the shareholders in the economic construction and profitable working of the lines, while the interference of Government disgusts their executive

executive. There is room, moreover, for looking with jealousy upon a system which leads to our borrowing capital in England upon much less favourable terms than the Government might command if it chose; I think that the 'guarantee system' should be made to give place, as far as possible, to one not so calculated to weaken private interests in the results."

V.—Other Terms that have been Suggested for the Encouragement of Railways in India, with Reasons for Concluding that their Extension must be Encouraged under a Guarantee.

It will be observed from what follows that Lord Dalhousie, when Governor General, contemplated the limitation of the guarantee of interest under the present system to a fixed capital to be determined by estimate, as also the limitation of the period within which the line should be constructed.

In the 77th para. of his Minute of the 20th April 1853, his Lordship wrote:—"It is to be presumed that interest will not be guaranteed by the Honourable Court upon any sum to be expended until it has satisfied itself that this sum, which it is proposed to raise for the construction of any fixed extent of Railways, is not more than is sufficient for the work, well and economically carried on, or without some secure provision for the completion of the line within a period to be named;" and he was further of opinion that "if these conditions be observed, it cannot be correctly said that all inducement to economy and exertion is lost. These will be requisite to enable the Railway Company to construct the line within the sum and the time allotted for it."

Writing of a particular line then contemplated, his Lordship added:

"It would be expedient that, if possible, the Company should be bound to complete the line * * * within a period of time to be named, under the penalty of a reduction of the guaranteed interest by a certain proportion for every half-year by which the Railway Company delays the completion of its work beyond the period named."

But in recommending these conditions, he advised "that the terms to be granted should be liberal, both in respect of money and time."

These views were summed up in the following recommendation:—

"That if it be necessary to guarantee a certain interest on the capital of the Company, means should be taken to ascertain approximately the probable amount required for the construction of the line, and that the amount of requisite capital on which interest is to be guaranteed should be strictly defined, and that the completion of the line should be required within a certain fixed period, under the penalty of a diminution of a certain proportion of the guaranteed interest for every half-year in which the line shall remain incomplete after the expiry of the period fixed."

These views were communicated to the Home Government, but the type of contract drawn up in 1849 was adhered to.

In addressing the Home Government on the subject of the guarantee, in Despatch No. 2, dated 29th November 1858, Lord Canning drew attention to Lord Dalhousie's views, remarking as follows:—

"If the engagement (with Messrs. Brassey & Co., for the execution of the Eastern Bengal Railway) be for a lump contract, based on a sufficient examination of the line and the necessary works, such an arrangement, it seems to me, should at once neutralise most of the evils of the present system.

"But, as a general rule, I would suggest that in any future contracts involving guarantee, an essential element should be that, previous to the commencement of work, a thorough and critical estimate should be made of the whole line, with its works, from actual survey and inquiry; exactly such an estimate, in fact, as would be required by the Company in view to inviting tenders in England for a lump contract, but embracing the cost of engineering establishment; that this estimate should be subjected to the criticism of our officers, under the injunction that a liberal spirit is to be exercised in this criticism, and that after adding to the estimate so determined, a handsome margin for contingencies (with the cost of preliminary expenses, and a fair allowance for management), the gross sum, and no more, should be the amount on which Government guarantee interest.

"It would then be for the Railway Company to judge for themselves whether they should endeavour to obtain a lump contract for the works, or execute them in any other way. With this Government need not interfere, nor with further proposals for expenditure or changes in the designs for works. All this would be left to the Railway Company and its Agents. Our supervision would still be exercised indeed over the quality and progress of work; in the audit of accounts and rejection of manifestly inadmissible charges; and in the regulation of the advances from the deposited capital.

"In such a condition of things, that clause in the contract which appears intended to provide for taking possession of the works in default of satisfactory progress in execution, would probably require to be re-cast, and made more specific and stringent.

"Such a system would really bring into play that stimulus to economy and exertion which Lord Dalhousie anticipated; it would, I conceive, be a vast relief to Government,

by freeing its members from the labour and responsibility of piecemeal consideration and sanction of expenditure; it would enable us to meet in our practice what appear to be the wishes of the railway authorities; and if at all so successful as I should hope to find it, it would do away with those objections to the guarantee system which, in my judgment, are the strongest."

Her Majesty's Government did not admit the practicability of these suggestions, as will be seen from the subjoined extract from Lord Stanley's Despatch, No. 16, dated 24th February 1859:—

"Although there is much on the face of these suggestions to recommend them, there would, I apprehend, be considerable practical difficulties in carrying them out.

"The observations which the Governor General applied to the past, viz., that no limit as to time could have been named with any real effect as things have turned out, at once manifests one great objection to an attempt at the present moment to provide such a limit. It would hardly appear to be a seasonable moment to introduce a measure when its futility as respects the past has so recently been shown.

"The same observation may be applied with equal force to the proposed limit as to capital. No estimate for the East Indian Railway Company, however accurately or carefully prepared, could have included the expenditure which has been caused by events which could not have been foreseen when the contract was made, and it would neither have been just nor expedient to have charged shareholders in this country with expenses consequent on the Sonthal rebellion, the mutinies, or the change of the route by the Government. If such a course had been attempted, it would have effectually prevented the flow of English capital, or the application of English enterprise, to works of public improvement in India.

"No Railway Company would be able to raise money in this country under a contract that would impose such risks upon the shareholders as the modifications proposed would involve. Even the contingency in the present contracts, under which the dividends may be reduced below the rate of guaranteed interest, has, to some extent, checked investments in Indian Railway securities.

"But while it would thus be impossible and unavailing to attempt to fix the exact amount of capital before commencing a work, it appears to Her Majesty's Government that the practical limit to expenditure is already provided by the control invested in the Government both here and in India. Under this control, which, while it is minute, need not be vexatiously interfering, no expense is incurred of which Government does not approve, so that all wasteful and unnecessary outlay is prevented; and as regards the question of time, the same control should have the effect of stimulating the exertions of the Railway Officers, and of insuring a steady and rapid progress. I do not find that in practice it is otherwise. The delays that have occurred have been attributed, not to the system, but chiefly to circumstances over which those concerned in the execution of the works had no control, and whether a limit were placed upon the amount of capital to be expended or not, some control would be necessary to ensure economy; for the estimate arrived at might, and probably would, be excessive to allow a margin for contingencies; and unless supervision were exercised, a guarantee might be paid upon an excess over that which was absolutely necessary.

"After giving the subject much consideration in Council, Her Majesty's Government cannot avoid coming to the conclusion that the solution of the difficulty may to a great extent be found in a simplification of the system of supervision exercised by the Local Governments. The plan suggested by the Governor General, of giving certain sections to large Contractors for a specified sum, is an arrangement which you admit would 'at once neutralise most of the evils of the present system.' I am inclined to concur in this view, which has, you are aware, been carried out in the case of the Eastern Bengal Railway, which has been let to a Company of well-known and responsible Contractors, who are bound to maintain the works for one year after their completion, and I cannot but think that a somewhat similar arrangement might also be applied to works which are entrusted to the Railway Company's Officers without the intervention of Contractors. In such cases the exact course of the line might be fixed, and estimates and specifications might be prepared under the supervision of Government Engineers with the same accuracy as if it were intended to invite tenders for the execution of the works. A period might likewise be fixed within which the particular section should be finished. These points being arranged with the approval of Government, there would no longer be a necessity for that minute interference with the proceedings of the Railway Officers during the execution of the works, to which so many objections have been taken on various grounds. The chief and minute control would then be exercised before the works were commenced, and after they were completed a strict examination would, of course, be made into the efficiency of the works and the accuracy of the accounts. While they were in course of construction, the supervision would be of a very general character, and such as would prevent the opportunity of collision and controversy.

"An opportunity will shortly be afforded of trying this plan on the Jubbulpoor Branch, on which it has been decided not to employ Contractors.

"In carrying it out, it will of course be necessary to establish a rigid system of audit, and to take every precaution to prevent the misappropriation of the funds which may be placed at the disposal of the Railway Officers to meet current expenditure. But these are matters of detail which I have no doubt you will be able to arrange without difficulty.

"You

" You will gather from these observations that, while Her Majesty's Government are very anxious to overcome the natural obstacles which occur in carrying out the provisions of the contracts as at present framed, they are unable to see how any of the fundamental changes which have been suggested could be made in the terms of those contracts without creating distrust and embarrassment amongst those in this country who might be disposed to advance capital for the purposes of public works in India."

In their reply (No. 49, of 1859) to this Despatch, the Government of India corrected the misapprehensions of the Secretary of State as to Lord Canning's proposals, pointing out that the conditions as to limitation both of time and capital expenditure provided for the fullest consideration of fair reasons for delay in the one case or excess in the other. At the same time, while fully sensible of the great benefits which would result from the preliminary exaction of carefully prepared estimates, the Government expressed their conviction that the plan indicated by Lord Stanley would not allow of close supervision being dispensed with, " for, while it prescribes careful estimates of cost and time, it indicates no consequences should these estimates be exceeded." To this Sir Charles Wood replied (Despatch No. 106, of 1859), that it may " be fairly expected that when estimates and specifications have been carefully prepared, with the joint concurrence of the Government and Railway Engineers, any variations of the plans would be exceptional, and that without departing from the principles of general supervision, referred to by Lord Stanley, any such cases might be made the subject of special consideration, and referred forthwith to the Consulting Engineer for that purpose. The practical difficulty of carrying out Lord Stanley's plan, or that suggested by your Lordship, seems to be that of delay in commencing a work, * * * in consequence of the length of time that must necessarily be occupied in making detailed surveys and measurements. But this, I should hope, might be in some degree avoided by keeping the large and extraordinary works on a line distinct, and applying the arrangement only to such works as may be soon and easily decided on."

On this last point it seems proper to observe, that no such work as a railway ought to be treated as an emergency in the manner contemplated; at all events, not now-a-days. In one of the enclosures of Despatch, No. 49, is a Note by Major Greathed, Deputy Consulting Engineer, in which he estimated that " a very complete and thorough inquiry in India of two years' duration must always precede the determination in England of any gross contract for the construction of an Indian railway." " If it be desired," Major Greathed continued, " to execute railways through the medium of contractors, I would advise the adoption of schedule contracts. An Engineer sent out with a staff sufficient only for preliminary examinations at the commencement of the autumn of any year might, by the following spring, send home rough estimates of the probable quantities of work of kinds required for his line, with his estimate of the cost of each description, and a memorandum of necessary plant, the whole settled and arranged with the consent of the Government of India.

On this information a schedule contract might be formed in England with people of stability, or the Company might determine to construct the line on its own account. In either case the persons charged with the execution of the works might be in the field within a year after the pioneering Engineers left England; and these would meanwhile have prepared and settled with the Government Engineers the specifications and detailed estimates of a sufficient length of line to admit of fair commencement."

In the other enclosure of the same Despatch (No. 49), the Officiating Consulting Engineer to the Government of India, Captain Hodgson, expressed the opinion that it was clearly impracticable to require the Engineers themselves, without the intervention of Contractors, to execute the works within a certain specified cost and period of time. This Officer was decidedly in favour of construction by Contractors.

The Right Honourable S. Laing, in his Minute already quoted, after enunciating the proposition that the whole construction of public works in India with public money, or money raised by a charge on the public, should be directly in the hands of Government, expressed the following views as to the modification of the Indian guarantee system:—

" Whether the Companies should be kept up as an agency for raising the capital is a very different question.

" There is a good deal to be said on both sides. No doubt, as in all roundabout processes, we pay dearer than if we did the same thing directly.

" With the provision as to exchange, we virtually pay 5½* per cent. through the Companies, where we could borrow ourselves at 5 per cent.

" We also allow a considerable charge for direction and establishment to be added to the guaranteed capital every year, which would be saved if we had no such agency. If the money market and our credit improved so that we could borrow in London at 4½ per cent., we still pay 5½ per cent. to the Companies, and if any one concern should eventually pay more than 5 per cent. we lose the benefit of it.

" On the whole, I think we may safely say that the agency of the Companies costs us 1 per cent., in one way or other, beyond the average rate at which we could borrow ourselves. But, on the other hand, there are some real advantages in the Companies.

" The greatest is that, where the money is raised in shares, with a proper deposit paid at first, you are safe of getting your money as you want it by making calls. But for this the Indian Railways must inevitably have been stopped on many occasions from the sheer

* Slightly under 5·3 per cent.

sheer inability of the Government to find the funds. A Government cannot be perpetually raising small loans, and if it can create, through the agency of Companies, a share capital of 10 or 20 millions with five millions paid up, and a certainty of getting the other 15 millions by calls just as you want it, and whether the money market is good or bad, it is an important advantage and worth paying for.

"Again, I attach considerable importance to having a large body of English shareholders connected with India.

"A man who holds a share in an Indian Railway is far more likely to listen to a prospectus of some other Indian enterprise than an entire stranger.

"The first instance of decided success, *i. e.*, of earning a dividend far beyond the guarantee, will bring in numbers of subscribers to Indian schemes, and tend to multiply bonds of connection between India and England.

"I estimate these advantages so highly, that I incline on the whole to think it is worth the sacrifice of, say, the additional 1 per cent. to keep the Companies.

"But I would keep them distinctly as part of the machinery for raising the money in England, and not for spending it in India.

"They should have their 5 per cent. certain, with no possible deduction if the concern did not pay its working expenses, as in the existing contracts, and in addition a fixed allowance for a Board, Office, and Secretary in London; and a provision that Government should spend the money on such and such a work to the best of its judgment, that an account should be kept and settled periodically, if necessary, by arbitration, according to which the dividend should be increased by (say) half the surplus profits over 5 per cent., with an option to the Government to buy the shareholders out at any time at a certain premium, such as 150 *l.* stock for 100 *l.* original capital. I use this figure of course only as an illustration. It would have to be fixed in each case according to circumstances, but I think it very desirable that in all such contracts there should be an option to the Government of taking the concern over at a liberal price, in case difficulties should arise in working it on the system of half profits beyond 5 per cent. Such a system would be very well adapted to draw capital, as a man would say, I have my 5 per cent. absolutely certain as in the Indian Funds; and looking at the prospects of India, and the result of some of her great works, such as the Eastern and Western Jumna Canals, the Rajahmundry Irrigation, &c., it is very likely that in the end my 100 *l.* will become 150 *l.*, but I would only give such terms where a company placed shares, with at least 20 per cent. paid up, for a sufficient amount of capital to secure the completion of the work."

And as to the manner of carrying out the works, Mr. Laing was of opinion that, "by far the best plan for a Government in carrying out such works as Railways, is to make what are termed 'lump contracts' with respectable Contractors, who undertake to complete a given work in a given time for a fixed sum of money.

"This really gives all the advantage of individual management in carrying on the work, and reduces the function of the Government to the manageable one of seeing that work is not paid for until performed according to contract. It is on this system that most of the great railways of France and other countries have been constructed which have been completed for the original estimate.

"There are plenty of large contractors always eager to take ready money contracts, in order to employ the staff, *matériel*, and experience which they have acquired in the construction of the Great English and European Railways now nearly completed.

"Had we in India dealt with these, instead of with guaranteed Companies from the first, we should now have had quite enough of them to insure effective competition for every considerable public work put up to tender.

"But the Company system is opposed to that of lump contracts. All the individual interests of Directors, Engineers, &c., are in favour of keeping the expenditure of the money in their own hands.

"Moreover it is essential to these contracts that they should be clear and definite. Any complexity is sure to make a loop-hole for the Contractor. But the intervention of a Company causes the greatest possible complexity. Whose business is it to settle the terms of the contract? Whose to enforce its provisions? If anything goes wrong, the Company say we trusted to the Government, and the Government say we trusted to the Company."

Mr. Laing's Minute was considered by Sir W. Denison, the late Governor of Madras, who, in expressing his condemnation of the guarantee system as certain to involve the Government in unprofitable and expensive undertakings, and to throw upon it the whole of the risk, while giving it but the minimum share of any profit which may accrue, dwelt strongly on the indifference of the investing public to the prospect of contingent profits, and advocated the construction of such works under contracts based upon a proper set of plans and estimates, as an essential preliminary.

In reference to the retention of the Companies as agencies for the raising of funds, his Excellency was of opinion that such was unnecessary, the experience of the Government of New South Wales having proved that money could be raised as it was wanted in the London market, either by the sale of debentures, or by a loan floated according to the state of the money market.

The Government of India did not adopt Mr. Laing's views as to the desirability of retaining the Companies in the manner just set forth, in the event of the work of several,

or of all, the lines being actually thrown on their hands. They were of opinion (Despatch No. 68 of 1861) that "an annual consolidated railway loan, as the means of finding "money, and a Railway Department at the India Office (constituted as such a department "used to be at the Board of Trade) as a means of keeping all the Indian Railways in one "view, dealing fairly by each, and supplying the wants of each, would make the retention "of Companies unnecessary."

They were confirmed in this view by the fact stated by Sir W. Denison, but in respect to the system of "lump contracts" advocated by Mr. Laing, they were of opinion that under such a system, "an intermediate agency in this country might be dispensed with "altogether during construction as needless, obstructive, and expensive. The works, we "believe, could be conducted in a more satisfactory manner by the Contractor's Agent "and the Chief Engineer working directly with a trusted Officer of Government, and we "desire to draw your attention to this suggestion.

"Whether all the objects in view might not be attained in the most direct and advan-"tageous way for the Government, by itstaking shares in the Railway Companies to the "extent of the aid required, is a matter that you will be best able to form an opinion "upon; but we are satisfied that this idea ought not to be hastily cast aside."

In consequence of the objections entertained to the guarantee system in force, it was declared some years ago, under the highest authority, that it should not be extended further than was necessary to complete the main trunk lines.

The question of promoting the extension of railways in some other manner had, therefore, to be considered, and it was decided, after much deliberation, to encourage the construction of approved lines on the standard gauge by the grant of land free of cost and of a maximum subsidy of 100 *l.* a year per mile open for 20 years from the date of opening. This system involved no interference on the part of Government, except such as is usual in all countries in the interests and for the safety of the public, while it made it incumbent on the projectors in their own interests to complete their works economically and rapidly, a limit of time being fixed, failure to open the line within which, carried with it a reduction of the period for which the subsidy was payable.

It seemed, at first, that this system was likely to find favour with the public, but later experience has demonstrated that the terms are not sufficiently liberal.

The Directors of the Great Indian Peninsula Extension Railway Company have on two occasions suggested terms in substitution of these in the correspondence that has passed relating to the proposed Indore Railway. Their first suggestion was, that the grant of the railway should be in perpetuity, and that the subvention should be for 99 years at the rate (apparently) of 100 *l.* per mile per annum; the further payment of the subvention to cease if the dividend of the company, exclusive of the subvention, shall at the end of 20 years equal 6 per cent., the Government then only paying the actual cost of the postal service, to be estimated on the public rates of the Company. The Directors also desired to limit the interference of the Government. Sir Charles Wood declined to entertain these terms. The Directors then proposed the following principles as a basis of negotiation.

The Government to pay a subsidy (apparently for 20 years, of 100 *l.* per annum per mile, and per ten thousand pounds sterling spent on bridges and works of magnitude to overcome extraordinary difficulties) and to provide the land for the Railway and for its construction free of charge.

The Government to pay for all services rendered by the Railway Company to the Government at the established rates whenever the subsidy ceases.

The interference of Government in the construction and working of the line, and in the regulation and revision of fares, to be the same as in England.

The terms of surrender of the Railway to Government, if the Government desires that it should be surrendered in any event, to be the same as for the Guaranteed Railways, with, perhaps, a further condition for giving the option to the Government or the company of surrendering the line whenever the main lines of the Great Indian Peninsular Railway Company are surrendered to Government.

In 1865 a proposal was laid before the Secretary of State for the construction of a Railway from Delhi and Agra to Jeypore, on certain other terms as to subsidy, suggested by Colonel Strachey of the Royal Engineers, the late Public Works Secretary to the Government of India.

In this proposal it is assumed to be the unanimous opinion of persons conversant with such matters, that the openings for investments in India and elsewhere, with a guarantee of interest, are still so numerous that the public will not subscribe capital for any unguaranteed Indian Railway undertaking; and further, that the expectation of obtaining, without fail, at least 5 per cent. on an investment out of England, is at the present time a *sine quâ non* for the subscription of money by the public for such an object. The aid of Government must be in a shape that gives definite security for a fair return of interest during the earlier years in which Railway undertakings are almost of necessity unremunerative, and the fact that some of the 5 per cent. guaranteed stocks are quoted below par was adduced as sufficient proof that less favourable terms than those will not induce the public to advance money for such undertakings.

The Government was therefore asked by the promoters "to give a subsidy of such an amount as shall make up the estimated net profits of the Railway to a fixed sum, equivalent to 5 per cent. on a minimum outlay on the works, the net profits to be reckoned

reckoned as one-half* of the gross earnings: the standard by which the subsidy is regulated to be the profits so estimated per week per mile of Railway; the subsidy to be repaid when the profits rise above 5 per cent. * * * The refund might take place by instalments, by the payment to the Government of a certain share, say one-half, of the profits in excess of 6 per cent. on the capital; or the Government might be regarded as a contributor to the railway capital stock to the extent of the payments on account of the subsidy; the other shareholders having a preference claim for interest at 6 per cent. if such a plan were thought desirable." The amount on which the profits are to be calculated to be determined by careful estimates, and include interest during construction, as the subsidy would not commence till the line is open.

Nothing precise as to the free grant of land by Government is stated, but it is inferred that the promoters looked for that, and that their proposals had reference only to a suitable modification of the subsidy.

So far as is known, nothing came of this proposal, but it is believed that the terms were not regarded with favour.

Mr. Bidder, the Consulting Engineer of the Sindh Railway Company, as also of Companies working under other forms of guarantee in different parts of the world, has expressed himself as follows in respect to the Indian guarantee:—†

"To return to what he considered the system ought to be, and on which he spoke with some decision, from the experience he had had of its satisfactory working in another quarter. First, with regard to the construction of the Railways, he thought that the Government should receive tenders from Companies of capitalists for the completion and equipment of a line of Railway, for example, between two given points, for a definite sum of money, and stating the amount of subvention they required from the Government, to be paid in cash, or by an equivalent. The character of the line, as regarded materials, workmanship, and accommodation, being defined, the maximum rates of fares, the regulations connected with the public service, such as conveyance of troops, &c., being fixed, the total capital, the amount of subvention, and the approval of the Railway by the Government on the completion of the same, being provided and stipulated for, the construction and working should be left entirely to the management of the Company, who should take, as a first charge upon the net revenue, interest upon their portion of the capital up to an agreed amount, say 5 per cent., and the surplus revenue afterwards to be divided in agreed proportions between them and the Government. By so doing, all the energy of independent management would be brought to bear, and that management would work with the same responsibility and limitation as in this country. He believed that, upon that system alone, the full advantages of railway communication in India, or in any other country, would be realised.

"He would, for the sake of illustration, assume a case, that of a Railway up the Indus Valley, 500 miles in length, and that the reasonable cost, including equipment, was 10,000 *l.* per mile, or that a capital of 5,000,000 *l.* would be required. Of this he would suppose the Government to furnish 5,000 *l.* per mile, or two and a half millions of capital, either in cash, or by an equivalent guarantee; and as the Company would have to find the balance, and to satisfy the Government that the bargain had been efficiently carried out, there would be every possible responsibility thrown upon the executive, that all the money would be economically and judiciously applied. Then the working, subject to conditions with the Government, similar to those he had indicated, should be conducted entirely by the Company, who should rely upon the receipts of the Railway alone for a per-centage upon their capital up to, say, 5 per cent.; and after that, the net receipts should be divided, say two-thirds to the Government and one-third to the Company, as an inducement to the latter still further to develope the traffic and to work economically. This arrangement of course implied a proper audit of accounts for the satisfaction of the Government. He believed that it would be to the advantage of Government to apply this system of working to Railways already opened for traffic, and to those now under construction; for instance, the lines from Kurrachee to Delhi, a length of from 600 to 700 miles, exclusive of the Indus Valley. For the privilege of working these lines, Government might receive, by tender, a contribution from the Company of, say, three or three and a half millions sterling, which would be more than adequate for the subvention of the Indus Valley line, which, if carried out, would complete a system of 1,100 miles, or thereabouts, from Kurrachee to Delhi, with a preferential capital of about five and a half millions sterling, with a preferential interest of 5 per cent., and a further contingent advantage from surplus net receipts. He was certain that the Government would get more profit under that system than under the present one, of taking the whole of the profits to meet the liabilities they had incurred, and they would have that contribution to apply to the extensions which might be made to this great backbone of Railways throughout India; because though it was a poor country, mile for mile, yet when it was considered that there was one mile of Railway in England for every 3,000 inhabitants, as against one mile of Railway in India for every 50,000 inhabitants, it would at once be seen that

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* In another place the promoters consider that it would be safe to reckon that the net profits would begin at 40 per cent. of the gross earnings, and rise gradually in 10 or 15 years to 50 per cent.

† Discussion on Mr. Brunton's Paper on the works of the Sindh Railway Company. *See* Minutes of Institution of Civil Engineers, vol. XXII., page 492.

that, in India, the necessity for branches and extensions would grow in importance every year.

"He did not think that it was necessary to enlarge his observations on this subject. He had pointed out what occurred to him as the rational system to adopt, a system which he believed might be made to work very practically. It was the system on which the Norwegian Trunk Railway was carried out. Parties in England contributed one-half the capital, and the Government the other half. The English Contractors took 5 per cent. preference, and the Norwegian Government took 4 per cent., and the surplus was equally divided. That system had been carried out without any difficulty or contention whatever. He did not mean to say that those exact terms would apply to India; but a system which admitted of independent energy, and obviated the necessity of State interference in construction, and a restriction in all the arrangements by which alone Railways could be effectually be carried out, would, in his opinion, be found advantageous to that great empire, and economical to the Government."

Mr. Bidder, it will be observed, would aid capital by a subvention so large, apparently, that the net receipts would be certain to yield the amount of the preference interest on the shareholders' capital, but no special provision is made for inducing economy in construction. In the case of the Norwegian Trunk Railway, however, this is secured by the presence on the Board of Management of official directors nominated by the Government. Some such plan as this was proposed to the Court of Directors by the Directors of the East Indian Railway Company in 1848. The Government, it was suggested, might provide one-third of the capital, or a portion to be agreed on, and have a right of nominating a proportionate number of Directors.

The promoters of the Rajpootana Railway, on the other hand, would have a subsidy in aid of revenue, estimated to yield a minimum interest, but with two elements of doubt, the actual amount of the total outlay and of the net profits—the nominal amount of the first and the ratio of the second being arbitrarily fixed with the object of inducing economical construction and working. It is in these particulars that the scheme has probably failed to find favour, for in other respects it is admirably adapted to the end in view.

Failing a new and better system of affording State aid, the Government of Bombay desires to see the guarantee modified so as to guard against waste and delay in construction. The only modification of the contract suggested, however, is in the rate of exchange, but it is recommended that Government should let the works on contract with a definite term.

Mr. Knight, in his letter to the Secretary of State already referred to, proposes that Government should either borrow money from the public to lend again to the Railway Companies, or float the Companies' debentures on the stock exchange with a Government endorsement.

In Madras the Indian Tramway Company has put forward a proposal to execute a line of railway to Pondicherry, on a guarantee of 5 per cent. for 25 years on a fixed mileage outlay (7,000 *l.*), advances of interest being repayable out of half surplus profits.

In an article in the *Quarterly Review* for July 1866 on "the value of India to England," the question of the best manner of encouraging private enterprise to embark in works of a remunerative character is briefly discussed *à propos* of the East India Irrigation Company's schemes.

"The advantage of personal interest," writes the Reviewer, "over official action, is insisted on, on the one side, while on the other it is observed that there is no occasion to give away the profits which belong to the State, and which the return proves the Government to be perfectly able to realize. A private Company with a guaranteed dividend involves, it is said, a sacrifice of State property, without securing the energy of private enterprise. We believe the last remark is true. But there is a middle course which we feel sure is in this case the right one." The Reviewer then suggests that Government should undertake the roads and bridges "not sufficiently remunerative to tempt private enterprise." Works such as promise profits, both certain and large, should "be offered to private enterprise in such a way as neither to detract from the energy of self-interest, nor to squander needlessly the resources of the State. It is only the guarantee of a certain profit independent of the success of the project that is said to have the effect of weakening the motives to exertion and economy. But such a guarantee is not a necessary part of the arrangement." Private persons, continues the Reviewer, should be allowed to undertake the works at their own risk, undue prodigality in making over the resources of the State being provided for by making the surplus profits, after the works have yielded an ample return to the company, the property of the State. With reference to this suggestion, it may be here repeated that under the Indian Railway guarantee, a moiety of the profits in excess of the amount guaranteed is applicable in repayment of advances made by the State on account of interest during the period the receipts have not covered the guarantee. Those advances discharged, the Government has no further lien on the profits. The guarantee, however, holds good throughout the term of the concession, as also the claim of the Government to reimbursement of its advances.

Whatever may be the case in respect to irrigation schemes, railway undertakings in India do not yet commend themselves with sufficient confidence as to induce the public to enter into them without a material guarantee, in some shape or other, of a fair and certain return from the outset.

It is possibly true that, as stated in evidence before the Select Committee of the House of Commons of 1858, the State might raise the funds required for the Railways by means of a simple loan, on more favourable terms than through the medium of joint stock companies backed by a guarantee, "the complex and artificial nature" of which, as alleged by Mr. Charles Freshfield (in a letter dated 20th January 1857 to the Chairman of the Court of Directors of the East India Company, copy of which was laid before the Select Committee), is such as to call for a higher rate of interest than would have been necessary for either a State loan or a simple and unqualified guarantee of *dividend*, the latter of which might, in his opinion, even have carried with it a stipulation reserving half the surplus profits to Government throughout the concession.

But of all works that may be made over to purely private enterprise in India, it seems to have been decided that irrigation works shall be the last, and as they *must* be carried out, the State has determined to contract loans for the purpose. This makes it the more unlikely that the Government will forego the extension of its Railway System under a guarantee of some sort, either by granting large subventions in aid of capital, reimbursable or not, or by undertaking such extensions itself, both plans involving an open loan in the money market.

It is the more incumbent, therefore, to endeavour to devise some system of guarantee, or of subsidy in aid of revenue, which shall not be open to the objections felt to the present system. In entering upon the more close consideration of the subject, it will be well to start with the admission that the financial burden of the present system has been mitigated by the large sums of capital usually deposited with Government by the various Companies in excess of their immediate wants. This view has been urged with some force by Mr. Freshfield in the letter already referred to, but that gentleman wrote before the occurrence of the two epochs (1861 and 1866) in which the State has been compelled to advance funds to a very large amount to several of the Companies.

The satisfactory results that have attended the working of several of the open lines have conduced also, in a much larger degree than was expected at this early period, to diminish the demands on the State.

But before proceeding further, it will be useful to consider the terms on which Railways have been encouraged by other States.

VI. Principles on which Railways have been encouraged in other Countries.

The following Extract from Mr. Laing's Minute, already referred to, sketches the systems pursued in the projection and construction of railways in England, the United States, France, and Belgium:—

"Different systems succeed in different countries. In the United States the system has been to leave the making of Railways, as entirely as the building of Cotton Mills, to unlimited competition and private enterprise. The result on the whole has been a complete success. The United States have got thousands of miles of cheap Railways, when the old countries of Europe have got hundreds of miles of dear ones. They carry life and civilization into the wilderness, by ricketty Railways thrown on cobweb timber structures across great rivers, with all sorts of curves and gradients, but they answer the purpose. Every now and then there is a great smash, sometimes among the speculators who build the line, sometimes among the travellers who use it, but in the long run the end is attained. The line is straightened, levelled, ballasted, and made solid by degrees as traffic increases; and the district is peopled, cultivated, and becomes the starting-point for a fresh advance in the great westward march of the Anglo-Saxon race.

"In the widest possible contrast to the American system stands that which perhaps affords the next most signal instance of complete success.

"Years ago, while other countries were talking of Railways, the little kingdom of Belgium set to work and made a complete network, uniting every considerable town with Brussels the capital, Antwerp the seaport, and with the neighbouring Railways of France and Prussia.

"They have been the main cause of the steady advance of Belgium in wealth and prosperity. Although worked purposely at low rates for the benefit of the nation, they pay on the average 5 per cent., or more than the interest on the loans raised for their construction.

"They did not cost more than lines constructed by private enterprise, and their management by the State, though somewhat slow and unbending, is safe, solid, and has, on the whole, given satisfaction.

"Between these two extremes of the American and Belgian systems, there are all sorts of intermediate systems.

"France has adopted the system of guarantee with great success; but here there were peculiar reasons to make it succeed.

"France waited for her Railways until other countries had pioneereed the way. She thus

thus lost the advantage of early communications, but gained that of experience, and by the time she began to make her railways in earnest, the cost of construction and probable traffic were reduced to such a certainty that the guarantee was purely nominal, and the system was in effect that of private Companies making railways under a general control of the State, which secured their particular districts, and prevented competition.

"Under these favourable circumstances, and in a country so rich and populous, and so destitute of water communications as France, Railways have been signally successful.

"They have paid on the average more than 10 per cent., and they have increased the wealth and activity of the country beyond calculation.

"It is owing to the Railways, and the Railways alone, that France has been able to stand a taxation heavier than that of England, to run up a National Debt second only to ours, and still to show no signs of exhaustion whenever there is a fresh speculation to be engaged in, or a fresh war to be waged.

"In England railways simply improved what already existed. They turned the 10 miles an hour of the coach into the 30 miles an hour of the train, and the week's transit by sea or canal into the 24 hours' delivery by rail.

"But in France, and generally throughout Continental Europe, railways have *created* what did not previously exist, viz., a possibility of locomotion for populations tied to the soil, and a possibility of interchange between provinces separated as by a wall of iron.

"Our English Railway System has halted between the two principles of regulated monopoly and unrestricted competition.

"Lord Dalhousie and I attempted in 1846 to introduce a system like that of France, on which the country would have been parcelled out into certain districts, fed naturally by one main Railway and its branches, and this assigned to the Company which would offer most advantage to the public in the shape of low fare and limitation of profits beyond 10 per cent., and of the period of the concession.

"Had this been carried out, I make no doubt that the value of English Railway Capital would have been at this day 100 millions more than it is, and that the State might have readily secured the reversion after 99 years (no very long period in the lifetime of a nation) of a property which would have paid off half the National Debt. But the tide set too strongly the other way. Every speculator (and at that time who was not a speculator?), every lawyer, landowner, and engineer was against us, and the only man whose influence might possibly have sustained us, Sir Robert Peel, had never applied his mind to the subject of Railways, and what vague impressions he had were those of the *Member for Tamworth* rather than of the *Statesman*, and all for unlimited competition and direct lines, regardless of cost.

"Accordingly our reports were completely upset, and English Railways have been made neither on the French system of a regulated monopoly, nor on the American system of unrestricted competition, but by a sort of scramble between the two, conducted very much after the manner of an old-fashioned County election, with armies of rival Attorneys, Agents, and Engineers, and decided by the chances of two Select Committees, one of the Commons, and one of the Lords, whose verdicts were regulated by no precedent or principle, and were proverbially as uncertain as the turning up of a die.

"During a considerable experience in practising before those Committees, I never could arrive at any rule to guide me in guessing at what might be the probable decision of a Committee on any given case except this—that an Irish Member was certain to vote for a competing line.

"The result has been that, on the whole, in England the system of competition has triumphed, though with just enough of opposition to make each case worth fighting at a cost which, in the aggregate, has been enormous.

"It is only fair, however, in looking back on the past, to observe that although the failure of Lord Dalhousie's policy in 1846 has undoubtedly caused an immense waste of National Capital, much individual suffering, and much discouragement to the disposition to invest capital in useful enterprizes, yet,on the other hand, the multiplication of Railways, regardless of expense, under the stimulus of periodical speculation, has no doubt conferred many benefits. A second Railway, where one would have sufficed, may ruin the shareholders in both; but in a rich and densely-peopled country, if they run only a few miles apart, each does good; and I am by no means certain that the aggregate of good thus done in England may not counterbalance the enormous evils by which it has been purchased.

"However, I leave this for others to decide, and merely refer to those instances of the history of Railways in other countries for the purpose of showing how various it has been, and that no conclusions are worth much which are not based on practical considerations of the actual circumstances of each particular case and country."

In the Appendix to this Section will be found in some detail a description of the systems on which Railways have been introduced into the countries referred to by Mr. Laing, as well as other countries. The various terms that have been conceded, as there explained, in order to encourage their construction by private persons, are brought

together in the following abstract, together with the terms of the Indian guarantee system:—

Period of concession: generally 99 years; sometimes less; in a few cases perpetual.
Protection from competition for a limited period.

In aid of Capital:
- Guarantee of the capital, as in the case of the Indian system, by the "Surrender" clause of the Contract.
- Land for way and works free.
- State loans bearing interest.
- State subvention.
- The State taking shares, those of the ordinary shareholders having a preference claim to a certain dividend in some cases.
- Grant of unsettled lands near the line.
- „ of timber, right to work minerals near the line, &c.

In aid of Revenue:
- Guarantee for whole or part of term of concession of a
  - (1.) Minimum rate of *interest* on a fixed or unfixed capital.
  - (2.) „ „ of *dividend* „ „
  - (3.) „ gross revenue.
  - (4.) „ net revenue.
  - (5.) „ „ subject to a variable abatement according as the gross revenue exceeds a certain amount (*see* Belgium).
  - (6.) Guarantee of an annual subsidy on the open mileage or in the lump.
  - (7.) Guarantee of a sinking fund for redemption of capital at *par*, out of revenue, with, in most cases, participation by holders of redeemed shares in the surplus dividends on the undrawn shares throughout the term of the concession.

When the guarantee is on a fixed capital, the value of the guarantee may be enhanced by the expenditure being kept below the amount.

In Brazil the guarantee is shared between the Local and Imperial Legislatures.

In India the guarantee is in force during construction, but the almost, if not quite, universal condition elsewhere is, that it comes into force from the date of opening, interest being allowed out of capital during construction.

In virtue of these concessions, some or other of the following advantages have been secured to the State:—

1. Power of control.
2. Power of nominating Directors in proportion to amount of capital subscribed in shares by Government.
3. Power of purchase at certain periods.
4. Power of regulating and revising the tariff.
5. Power of reducing the tariff when the dividends pass a certain limit.
6. Low tariff for soldiers, sailors, prisoners, paupers, &c., and stores.
7. Mails carried free, or at a reduced rate, with power of regulating the service.
8. *Participation in surplus profits when they exceed a certain limit.
9. *Reimbursement out of Revenue (*see* Prussia) or out of surplus profits (in various proportions, generally one half) of amount of subvention, or of advances on account of the guarantee of interest or dividend, including, in some cases, simple interest on such advances.
10. Possession of way and works at end of term of concessions.

VII. Desiderata in a New System of affording State Aid towards the Construction of Railways in India.

It should be premised that the present guarantee system appears to be thoroughly acceptable to the English public; any amount of money may, it is believed, be obtained by continuing that system, and within the next four years some 20 millions sterling will have to be raised under it to meet existing liabilities. Terms more favourable in a directly financial point of view need not, and must not, therefore, be offered, while less favourable terms are not likely to be responded to until the existing guarantees have come to a practical close.

Further, it may be assumed that the State should not divest itself of all connection with the further development of railways in India, even if it could, and, therefore, it must exercise a control over their management in some form or other. This control, it must also be remembered, is regarded with favour by those who find the funds.

Looking at the objections that have been raised to the present system, it would seem that

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* In some cases the profits are not shared till the dividend exceeds that guaranteed by, say, 1 or 2 per cent.

that any new system of affording encouragement to Railway enterprise should fulfil the following conditions:—

I. It should be as little onerous as possible to the State by conceding the minimum terms on which the funds can be obtained; and experience shows that those terms must ensure to the promoters an absolutely fixed minimum return from the outset.

II. It should appeal directly to the self-interest of the promoters, so as to secure—

(*a*) A minimum capital outlay, *i. e.*, economy and rapidity of construction.
(*b*) A minimum revenue expenditure, *i. e.*, economy of working; and,

III. It should involve a minimum of interference in the internal management of the undertakings on the part of Government.

The advantages that should be secured for the State are—

I. The power of fixing maximum tariffs, with "parliamentary" rates and special rates for mails, public stores, soldiers, sailors, prisoners, paupers, &c.

II. The power of regulating the mail service.

III. Participation in profits in view, at least, to the reimbursement of previous payments made under the guarantee, with simple interest thereon.

IV. Right of purchase at certain periods, and of re-entry in cases of default.

V. Reversion of the way and works of the Railway to the State on the expiration of the term of the concession, and in expectation thereof special power to compel their proper maintenance during the later years.

VIII. Outline of a new System for encouraging Railways by State Aid in India.

The following terms are proposed to meet the conditions prescribed:—

1. Term of concession: 99 years, as at present.

2. Land for way and works free.

3. Guarantee of minimum dividend of 5 per cent. per annum throughout the period of the concession on the entire capital required.

4. A *nominal* capital to be fixed, based on proper surveys, specifications, schedules of works, and estimates, or even on tenders from contractors; to include management, professional control, rolling stock, stores, maintenance for one year after opening of each section, and interest on capital during construction.

5. A *nominal* period to be fixed, within which the line is to be opened for traffic throughout.

6. Guarantee of a Sinking Fund out of revenue for the extinction of the capital at *par* within the term of the concession.

7. Any deficit in working to be advanced by Government.

8. Advances on account of Sinking Fund and deficit in working to be repaid from revenue, with simple interest at 5 per cent. per annum.

9. Dividends to be charged against capital and revenue, as hereafter explained.

10. During construction, and to the end of the half-year in which any section of the line may be opened, dividends will be charged to capital. The Government will advance the sums as due, and will thereupon be reimbursed in shares at *par*, representing an equivalent amount of capital to be periodically created for the purpose. In respect of these and other shares held by Government at any time it shall be on the same footing as other shareholders.

11. From the half-year after that in which any section of the line may be opened, the dividends on the capital outlay on such section will be charged to revenue; advances being made by Government to be reimbursed with simple interest at 5 per cent. per annum from the net receipts.

12. From the half-year after that in which the line may be opened throughout, whenever that may occur, shareholders shall be entitled to $\frac{1}{10}$th of net receipts, after deducting the contribution to the Sinking Fund; and for every 200 *l.* per mile saved in the construction of the line, they shall receive, in addition, previous to the expiration of the *nominal* period, $\frac{1}{10}$th, and after its expiration, $\frac{1}{100}$th of the net receipts, provided the works be carried out in accordance with the general specification, and to the satisfaction of the Government. When the whole of the advances made by Government, with simple interest thereon, have been repaid, the whole of the surplus

profits shall be payable to the shareholders. In arriving at the actual cost when the line is opened, due allowance must be made for works remaining to be completed, according to the original schedules.

13. The capital to be paid in to Government as subscribed. The Government will hold such sums within the subscribed capital as are required at the disposal of the companies in India.

14. Net receipts to be paid in to Government half-yearly, and the Companies to be required to bank with a Government bank.

15. The rate of exchange for capital and revenue transactions between England and India to be the same and invariable.

16. Net receipts to be appropriated to the repayment, firstly, of advances on account of deficit in working, with the simple interest accrued thereon; secondly, of advances on account of Sinking Fund, with the simple interest accrued thereon; thirdly, of the simple interest on the advances on account of dividends; and fourthly, of those advances themselves, subject to the participation of shareholders in the net receipts under Clause 12.

17. Provision for maximum tariffs, with "parliamentary" rates and special rates for mails, public stores, soldiers, sailors, prisoners, paupers, &c.

18. Regulation of the mail service.

19. Power to Company to surrender at any time, on due notice; the capital expended to be repaid, or the minimum guaranteed dividend to be continued to be paid for the remainder of the term, at the option of the Government. In this event, the Sinking Fund to lapse to the State.

20. Right of Government to purchase at intervals of, say, 25 years. The purchase-money to be determined as in the present contracts, or, as suggested by Mr. Laing, at, say, 125 *l.* for 100 *l.* nominal capital. The Sinking Fund, in this event, to lapse to the shareholders.

21. Right of Government of re-entry in case of failure to complete and open, work or maintain the line, of breach of contract, or of act of bankruptcy on the part of the Company. The Sinking Fund, in each or any of these events, to lapse to the State, and the shareholders to receive for the remainder of the term the minimum dividend guaranteed, with the option to the State of redeeming the same by a single payment.

22. The control to be exercised in England through a Government Director with the power of *veto*, as at present; in India the accounts to be kept in an approved form, and be at all times open to the inspection of a Government Official, who shall also audit them.

The class of the line and the general scope and style of the works having been determined on when making the concession and fixing the nominal capital, the carrying out of the works to be left entirely to the Companies. An Officer of Government to be deputed to inspect the works (say) twice a year during construction, in order to satisfy the Government that they are being carried out in general accordance with the intention; and no portion of any line to be opened for traffic until authorised after inspection as in England.

The working to be left entirely to the Companies.

23. The land, with the way and works and all property moveable or immoveable, to be surrendered to Government at the end of the term of the concession, the Sinking Fund becoming the property of the shareholders.

A few remarks regarding some of these proposed terms may help to a more complete apprehension of their scope and object.

2. The outright contribution of the State on account of land may be estimated at about 500 *l.* per mile.

3 & 4. A nominal capital is fixed, construction within which carries with it certain advantages. The actual capital is not limited, and a minimum dividend is guaranteed on the entire capital required. The nominal capital should be fixed with a liberal margin to cover contingencies. The check of the Government should be exercised at this stage through a professional Officer possessing local knowledge, whose business it would be to verify the schedules of works and estimates.

5. A period is fixed, and certain advantages are contingent on the line being opened within that period. This period should be fixed liberally, and based on the rate of progress of the Railways already constructed. It must consist of a minimum number of years (say four), whatever be the length of any particular line, but 100 miles should be required to be opened on its expiration, and for each (say) 100 miles of line beyond the first 100 miles another year should be allowed. The period should be subject to extension only in the event of internal commotion or foreign war interfering with either the progress of the works or the importation of material; and if exceeded from any other cause, the Government should have the right, on giving (say) 12 months' notice, to enter on and complete the works, or to take them over as they stand, on repaying the capital expended either in the lump or by an annuity.

6 & 23. By providing a Sinking Fund the requirement that the land with the way and works should be surrendered to Government at the end of the term of the concession is not likely to be objected to. The appropriations from Revenue would be very small, less than one-tenth per cent. They should be made half-yearly, commencing from 1st January, of say, the first, third, or fifth year after the first section of the line is opened for traffic; to be a first charge on the earnings after payment of the working expenses, and to be retained by Government, on whom will devolve the repayment of the capital on the surrender of the line at the end of the term of the concession. Should it be preferred, however, the Sinking Fund may be applied to the gradual extinction of the capital by cancelling shares periodically by lottery, but in this case the French system of allowing holders of cancelled shares to participate in surplus profits throughout the term of the concession should be adopted. Power must be reserved to Government to see that the line is efficiently maintained during the last few years of the concession. In support of this proposal of a Sinking Fund, an Extract from Mr. Baxter's paper "On Railway Extension and its Results" in the Journal of the Statistical Society for December 1866, is appended. (*See Appendix to Section VIII.*)

9, 10 & 11. The practice out of England is almost universal of paying interest during construction* out of capital, and it ought to be an incentive to rapid and economical construction. By issuing shares to the Government, instead of to the ordinary shareholders, in exchange for payments under the guarantee as made, it removes, to some extent, the temptation to augment the capital unduly, should the quotations of the shares be at a premium, and it affords the Government the means of realising its advances by negotiating the shares, if at any time requiring to do so. If the system of charging interest during construction to capital be objected to as a final and permanent arrangement, it might be modified by requiring shares representing an amount equal to that paid as interest, to be cancelled within a specified number of years by a guaranteed annual amortissement from Revenue. As the dividends on the capital expended on sections of the line as opened are to be charged to Revenue, the amount of the capital expended on any section must be determined rateably, or by special agreement. It may be mentioned that foreign railways are frequently constructed under a contract, which includes the payment by the contractors of a guaranteed dividend during construction, the State guarantee coming into force from the opening of the line.

12. Provision is here made to stimulate the Companies to rapid and economical construction, as well as to develope traffic, so far as lies within their power, and to induce economical working directly the line is open throughout, by the grant of an increased dividend, while at the same time providing for the gradual reimbursement of the State advances on account of dividends. Without participation in net receipts until they exceed the guaranteed amount (5 per cent.), as at present, the prospect of an increased dividend is too remote in the early years of an open line to exercise much, if any, influence on the management to secure these objects.

Supposing that net receipts are from the first shared, one-tenth by the shareholders and nine-tenths by the Government, the following figures show the resulting dividend to the shareholders, compared with the provision under the present system of halving the profits in excess of 5 per cent. :—

PROPOSED SYSTEM.			PRESENT SYSTEM.		
PER-CENTAGES ON CAPITAL.					
Net Receipts.	†Dividends to Shareholders.	Advanced by Government.	Refunded to Government.	Dividends to Shareholders.	Advanced by Government.	Refunded to Government.
1	$5\frac{1}{10}$	$4\frac{1}{10}$	- -	5	4	—
2	$5\frac{2}{10}$	$3\frac{2}{10}$	- -	5	3	—
3	$5\frac{3}{10}$	$2\frac{3}{10}$	- -	5	2	—
4	$5\frac{4}{10}$	$1\frac{4}{10}$	- -	5	1	—
5	$5\frac{1}{2}$	$\frac{1}{2}$	- -	5	- -	—
6	$5\frac{6}{10}$	- -	$\frac{4}{10}$	$5\frac{1}{2}$	- -	$-\frac{1}{2}$
7	$5\frac{7}{10}$	- -	$1\frac{3}{10}$	6	- -	1
8	$5\frac{8}{10}$	- -	$2\frac{2}{10}$	$6\frac{1}{2}$	- -	$1\frac{1}{2}$
9	$5\frac{9}{10}$	- -	$3\frac{1}{10}$	7	- -	2
10	6	- -	4	$7\frac{1}{2}$	- -	$2\frac{1}{2}$

* In India the E. I. Irrigation Company does so.

† Excluding additions to the dividend consequent on saving in the construction of the line.

As the effect of issuing shares in repayment of interest during construction is, by increasing the capital, to reduce the rate of dividends, the comparative increase in dividend at first is more apparent than real under the proposed system. As the net receipts rise, the present system is certainly more favourable to the shareholders. The advances, however, to be reimbursed would be considerably less under the proposed system, so that the shareholders would enjoy the whole of the surplus profits at a comparatively early date, and the more immediate prospect of a higher dividend, by participation in net receipts on the thorough opening of the line, would be more acceptable to the public.

The advantage to the State, as well as to the shareholders, of encouraging economy in construction, by making an addition to the dividend in consideration thereof, will be seen from the following figures, the estimated cost of the line being 12,000 *l.* a mile:—

Supposing the actual cost to be—

	£. 12,000 or	£. 11,000 or	£. 10,000
The dividend for which the State would be liable at 5 per cent. would be -	600 or	550 or	500
And if the net receipts be - - - -	500	500	500
The shareholders would receive besides the 5 per cent. $\frac{1}{10}$ of 500 = - -	50 or ($\frac{1}{10}+\frac{5}{100}$) of 500 = 75 or ($\frac{1}{10}+\frac{10}{100}$) of 500=100		
And the total payment to the shareholders on account of dividend would be -	650	625	600
And the net advance of the State for dividend would be - - - -	150	125	100

So long as the annual net receipts do not exceed 1,000 *l.* per mile (which practically they never will do) the net advance of the Government continues to be diminished; and with an allowance of $\frac{1}{100}$th of the net receipts for every 200 *l.* saved in construction, the estimated cost may be extended to 18,000 *l.*, but not higher, without any change in the proposed ratio of participation being called for in the interests of the State.

As the works would not be all finished on the opening of the line, allowance would have to be made for the probable cost of completing those on which the nominal capital was based; and it should be provided that all the works originally contemplated must be carried out within two years of the expiration of the fixed period, subject, in case of default, to non-participation in net receipts under Clause 12 for a period equal to the delay.

Should the inducements to economical construction under Clauses 10 and 12 not be considered sufficiently strong, it might be provided that the Government should find the balance (if any) in excess of the nominal capital required to complete the line, as originally specified, whether the existing shares be quoted at a premium or a discount, receiving in repayment shares at *par*, and taking the loss upon itself in the event of a discount quotation. If the nominal capital were carefully fixed in the first place, the risk would be small, and not more than the Government, as a party to its determination, might undertake.

14. It does not seem necessary, under these terms, that the gross receipts should be paid in to Government as realised, especially as, in the case of the present lines, the Government has consented to allow interest on the net deposits.

15. The *par* rate of exchange would certainly be most convenient; but the present guaranteed rate (1 *s.* 10 *d.*) is by no means disadvantageous to the State; on the whole, in fact, it will probably be a source of considerable profit.

17. It would conduce to more harmony, or remove the risk of its being disturbed, to prescribe a special remuneration for the mail service.

19. The Company must be allowed the right of withdrawing from the undertaking. The terms under which this is allowed are simple and fair.

20. It being impossible to foresee the requirements of the public, or the position which railways may occupy years hence, it is expedient that Government should reserve the right of purchase at certain intervals.

22. If a Joint Stock Company formed under a guaranteed minimum dividend of 5 per cent. can be said to possess any of the elements of private enterprise, and if it be the case that private enterprise implies efficient and economical management, the degree of control proposed should be sufficient in the interests of the State. The misapplication of funds, and the undue augmentation of capital by extravagance, or throwing revenue charges on capital, are the main points to be guarded against, and something might be gained by studying the system of audit prevailing on the French railways. With the inducements held out, Shareholders and Directors have an interest in sending out trustworthy Chiefs of Departments, and in supervising them so as to ensure economy and efficiency, if such supervision from England be practicable. This may be doubted, and a managing Director in India would probably be the most sure way of securing success. Should the control proposed not be considered adequate, there seems nothing for it but to continue the present system of control, which is more unpopular from the impatience with which control from without of any

any kind is regarded by men generally, and professional men in the position of the servants of *quasi*-private companies especially, than from any defects inherent in it, or want of discretion in its exercise. The proposed control, it may be confidently affirmed, would be found ample if the works be carried out under contract by such a firm as Brassey & Co., but they must of course have their profits. It may, however, be the more expedient course to provide that the works should be carried out in that way, notwithstanding the probable larger cost, and the preponderance of opinion seems in favour of it.

The difficulties attending the exercise of a proper control under the system of putting a railway in hand without previously prepared estimates in detail, and the facility with which that control may be exercised when such have been prepared, as in the case of lump contracts, the system now generally adopted, may be very readily apprehended from the following extract from Lord Canning's Despatch to the Secretary of State, No. 2, of 1858:—

"It is required to construct a great work, extending over hundreds of miles in length, and over several years in time, without waste, whilst detailed projects and accurate estimates are received only bit by bit as the work proceeds, and whilst there is practically no limit to the whole amount which is to be expended, and the interest on all this expenditure, whatever that may amount to, is to be paid by the Government of India.

"In such circumstances I really do not understand how a *general* control can act, or what it means. The only approach to security for economical execution must be in the detailed scrutiny of the proposals of the Railway Company's Officers as they are brought before us one by one as the custom has been, and in a prompt check to every thing which may be a precedent in extravagance."

There is no doubt that the Eastern Bengal Railway was constructed under contract with little or no friction, and there is every reason to believe that the Delhi Line is being carried out with as little. Moreover, it would seem to have become the practice of the Home Government to give out all new Indian lines to Contractors.

The action of Government control might, however, be simplified and facilitated were the Government Officer placed directly on the Agency. This was proposed spontaneously, it is believed, by the East Indian Railway Company in 1860 or 1861, and the Enclosures of Despatch, No. 49, of 1859, show that this view was entertained by two of the Consulting Engineers of that time. The then Officiating Consulting Engineer to the Government of India, Captain Hodgson, would "associate the Government Officer and the Board's Agent in the management of the Railway affairs, both sitting in the same Office, and jointly managing all the business. The Agent's duties would, in reality, be principally with the mercantile part of the business, and the Government Officer must, of course, be the superior authority. The Government would have complete check over him in the weekly reports of all proceedings, and the manner of reference in differences of opinion between the associates might easily be arranged for." The other Officer, Major Greathed, wrote, "I am convinced that the operations of Railway Companies would be very much facilitated if the direction of all points connected with the construction of works were committed to a Board or Agency seated in India which should include a Government Member. * * * The expenditure would, with advantage, be arranged in India by authorities under the control of the Government, by whom all contracts for any works to be executed in India should be made, with the assistance, if necessary, of the Board at home; but, as a matter of course, I would commit to the Home Board discretion only as to the manner of fulfilling requisitions sent from this country, whether for men, plant, machinery, or materials. I look to this as the manner in which Railway Companies must ultimately and practically be governed, but I hardly anticipate that the time has yet come when English shareholders will be of that opinion."

The opinion of the Government of 1861 as to dispensing altogether with any intermediate agency in this country, under a system of "lump contracts," has already been quoted in the fifth section of this Note.

It is believed that the terms proposed will fulfil the conditions laid down, and that they cannot interfere with the present system. During construction the two systems are financially identical as respects the public, and before any lines that may now be conceded can be at work, the present system, if not further extended, will have ceased.

There are four lines, aggregating about 2,200 miles in length at present under consideration, viz., the Oudh and Rohilkund (800 miles), the Indus Valley (say 500 miles), the Peshawur (say 300 miles), and the Rajpootana (say 600 miles). If put in hand from 1868 they might be opened throughout in 1877, with a maximum advance in the previous year on account of dividends, including the one-tenth of net profits, of something under one million sterling. The payment on account of the one-tenth of net profits should be about 52,000 *l.* in 1876, and have amounted up to the end of that year to about 68,000 *l.* There would be no actual charge to the State during the four first years, or till 1872, in which year the advances would be about 340,000 *l.* If the Government determined to limit their advances in any year to one million sterling, further concessions might be made in 1874 and following years, the dividends on the capital required for which the State would begin to become liable for in 1878, when the profits on the first system would sensibly diminish the demands on its account. The foregoing is on the supposition that the lines would be constructed on the average for 14,100 *l.* per mile, including interest during con-

struction (1,500 *l.*), and the equivalent of the State contribution in the exchange of the capital expended in India (600 *l.*) On all the lines being open for traffic, the debt to the State on account of advances of dividends would under this system be less than 3,570,000 *l.*, or about 1,620 *l.* per mile, whereas under the present system it would be about 6,160,000 *l.* or 2,800 *l.* per mile. Under the proposed system, again, the necessity of further advances by the State would probably cease in 1884, and the debt would then be about 6,775,000 *l.*; under the present system this would occur in 1881 with a debt of 7,870,000 *l.*, the simple interest of which would not be covered till 1885. These figures are derived from a consideration of the circumstances of the existing Railways, and may be regarded as giving a fair comparative view of the probable position under the two systems, without making any allowance for the improved results to be anticipated from the inducements under the proposed system to economy in both construction and working.

IX. Concerning the Construction of Railways by the State itself, with a Comparison of the Financial Bearings of the Different Systems Discussed.

It is unnecessary to discuss the policy or propriety of Government undertaking the construction of Railways itself. All non-Government Authorities are opposed to it, and amongst Government Officials there is much difference of opinion. Lord Dalhousie's objections to it will be found in the 67th to 74th paragraphs of his Minute, dated 20th April 1853, and Sir J. P. Grant's arguments on the other side in the 20th to the 30th, the 34th, 36th, and 39th paragraphs of his Minute of the 4th September 1858. The Home Government has, on more than one occasion, expressed itself adverse to anything of the kind except in a very limited way. It has, however, long been desired that one line should be constructed by the State, more, it is believed, as an experiment, and to see what can be done by Government Officers in comparison with what has been accomplished by private Companies, than for any other reason. At present there is little probability of anything more extensive than this being even advocated, much less favourably entertained; but the question of carrying out the Peshawur Line in this way has been recently raised, and it is such a line as this, the financial returns of which must be very poor for many years, or perhaps a line passing through Native States, such as the Rajpootana Line, that may most properly be undertaken by the Government. As to the Peshawur Line, it should be borne in mind that for years past it* has been regarded as a natural extension of the Sindh and Punjab lines, and in the course of last year the Agent expressed to the Government the desire of the Punjab Company to undertake it under guarantee. It may be well to note here that, should the application be renewed, the question of making the concession contingent on the fusion of all the lines of the Sindh Company, or at least, all but the Delhi line, might be considered with advantage.

* See para. 5 of Mr. Andrew's letter enclosed in Court's Despatch, No. 38 of 1857—Financial (Railway).

Assuming, however, that it be determined to undertake the construction of a Railway by direct State agency, it is imperative that the Government should not proceed in the dark, or on anything but a close estimate, and next that it should be prepared with the necessary funds as they are demanded. Colonel Yule's estimate of 1855, for one mile of locomotive power Railway for a main line in Rohilkund, on the standard gauge (road and rails for a single line) was 4,300 *l.*, including only 450 *l.* for rolling stock and without a Telegraph. Bridge rails, weighing 50 lbs. to the yard, spiked to longitudinal sleepers without chairs were to be used. In 1861, Colonel Yule modified this estimate† to 6,500 *l.* to meet the rise in prices, and, it may be, a larger supply of rolling stock. A further revision, at the present time, would doubtless lead to a further large increase, and leaving the region of estimates for that of facts, there seems no good reason to suppose that any first class line can be constructed in India, with its workshops and an adequate rolling stock for less than 10,000 *l.* a mile, the estimated eventual cost of the Great Southern of India Railway, a line which is considered to have been carried out in a thoroughly economical manner. The idea of a cheaper line than this should, therefore, be discarded. If not there will be disappointment, for only under very favourable circumstances will it be accomplished for that sum. In fact, in counting the cost of a systematic extension of existing Railways, it will be unsafe, even with Government execution, to take the average cost at less than 11,600 *l.* a mile; the sum 11,000 *l.*, arrived at in the 2nd section of this note, increased by the amount of State contribution in the rate of exchange of the Indian expenditure. It is the fashion to regard Engineers' estimates with distrust, and certainly the estimates of the earlier Indian railways have proved singularly fallacious, the actual cost having, in almost every case, been more than twice the estimated cost. Any estimate, then, that may be brought forward should be scrutinised very closely, and the smaller its amount the closer should the scrutiny be; for if the Government is deluded into undertaking a line of Railway by unreliably low estimates, its experiment will be regarded with ridicule, if it do not lead to embarrassment in finding the funds.

† Note of 7th September 1861.

Of all the lines at present on the *tapis*, the Peshawur line is likely to be the most expensive, mile for mile, to construct, and it will not be unreasonable to assume its cost, as a single line, at 15,000 *l.* per mile, or say, for the whole, 4½ millions sterling, exclusive of

of interest during construction. Supposing that the line were gradually put in hand during three years, funds would probably be required as follows:—

	£.
In the 1st year	330,000
„ 2nd „	825,000
„ 3rd „	1,125,000
„ 4th „	990,000
„ 5th „	600,000
„ 6th „	375,000
„ 7th „	180,000
„ 8th „	75,000

and the line would be opened throughout by the seventh year.

The Rajpootana Line would require a larger capital on the whole, but would be constructed at a cheaper mileage rate, and allowing the claim of the B. B. and C. I. Company to the section from Baroda as far as Neemuch or Ajmere, the State might undertake the construction of the link remaining to connect it with the Railway system of the North-Western Provinces. The Oudh and Rohilkhund Lines would be conceded to the Indian Branch Railway Company on such terms as may be substituted for those which have not been found to answer, and the Indus Valley connecting link would naturally fall to the Sindh Company, whose lines would be united by it, and whose Steam Flotilla it would compete with.

Assuming, as elsewhere arrived at, that the average cost of future lines constructed under guarantee may be 12,600 *l.* per mile, exclusive of interest during construction (1,500 *l.*), and that Government may construct for 11,600 *l.* per mile, the following figures will show approximately the annual demand on the State for one mile of Railway, on account of interest at 5 per cent. per annum, it being noted that in the case of construction by Government the capital has to be raised by loan:—

Years.	Government Construction; Cost £.11,600.		Present System of Guarantee; Cost £.12,600.		Proposed System of Guarantee; Cost £.14,100, including Interest during Construction.	
	Yearly.	Total.	Yearly.	Total.	Yearly.	Total.
	£.	£.	£.	£.	£.	£.
1st	145	145	150	150	—	—
2nd	290	435	310	460	—	—
3rd	405	840	440	900	—	—
4th	550	1,390	600	1,500	—	—
5th	445	1,835	490	1,990	580	580
6th	370	2,205	420	2,410	520	1,100
7th	350	2,555	390	2,800	490	1,590
8th	290	2,845	330	3,130	440	2,030
9th	220	3,065	265	3,395	380	2,410
10th	140	3,205	175	3,570	295	2,705
11th	25	3,230	65	3,635	195	2,900
12th	+	3,230	0	3,635	135	3,035
13th	- -	- -	+	- -	70	3,105
14th	- -	- -	- -	- -	10	3,115
15th	- -	- -	- -	- -	+	3,115

Thus, we see that, with Government construction, a line would probably cease to be a burden on the State in the twelfth year from its commencement, the net amount of interest advances up to that time being 3,230 *l.*, or 28 per cent. of the cost. Under the present system this would occur in the same year with net advances aggregating 3,635 *l.* or 29 per cent. of the cost, and under the proposed system, in the fifteenth year, with net advances amounting to 3,115 *l.* (inclusive of a sum of 445 *l.* on account of the one-tenth of net receipts made over to the shareholders from the opening), or 22 per cent. of the cost, including interest during construction. No allowance has been made for improved working either under Government or under the proposed system of guarantee. The terms of the latter are specially calculated to exercise an important influence in this respect. The average yearly advances of interest would be—

	£.	
Under Government construction	294	per mile for 11 years.
Under the present system	330	„ „ 11 years.
Under the proposed system	311	„ „ 10 years.

In the last amount is included a sum of 44 *l.* on account of one-tenth of the net receipts made over to the shareholders, who would, from the time of opening, receive a dividend in excess of that guaranteed and amounting in the fifteenth year to 5·6 per cent. After the net receipts amounted to 6·25 per cent., the dividends to the shareholders under the proposed system, hitherto greater, would begin to become less than what they are under the present system.

X.—Outline of the Contracts with the Guaranteed Railway Companies.

The provisions of the contracts with the Guaranteed Railway Companies are briefly:—

Contract with East Indian Railway Company Experimental Line, dated 17 August 1849.

Clauses 1 and 2 -	The Government determines the route or direction to be followed, and has power to alter, extend, or limit it thereafter, as they think fit.
Clause 3 - -	The Government provides the land for the Railway, and the works, stations, offices, warehouses, and other conveniences.
Clause 4 - -	The Government certifies the necessity and expediency of all works (in writing), and the Company is bound to carry out the same. The Government has the power to require an Electric Telegraph along all or any part of the line, "upon such principle and under such regulations as to its use, and the terms of its use, as shall be directed or approved."
Clause 5 - -	The Government can require sections of line to be completed and thereupon to be opened for traffic.
Clauses 6 and 7 -	Provide for the payment into the Treasury, and for the withdrawal therefrom, of the capital, and that the rate of exchange of capital transactions between England and India shall be 1*s.* 10*d.* per Rupee.
Clause 8 - -	The Company to provide to the satisfaction of the Government a good and sufficient working stock, and the Government to have the power to determine the number, speed, and times of running of the trains; also the terms on which the public are to use the Railway; also to approve the fares—also to require a reduction thereof, so as to limit the profits to 10 per cent. when they have exceeded that limit.
Clause 9 - -	The Government to grant the Company a lease for 99 years from date of contract, of the land required for the completed line, and the works and conveniences belonging thereto, upon its completion.
Clause 10 - -	The Government to have the control and superintendence of the Company, their offices, servants, and agents, also their accounts and affairs, and to have free access to all books, accounts, papers, &c., communications between the Company and their legal advisers excepted; also to appoint an unpaid Government Director of the Company with the power of *veto*.
Clause 11 - -	Expenses of Company to be stated and submitted for sanction and approval of Government.
Clause 12 - -	Capital accounts to be kept by the Company, to which approved expenditure shall only be carried, and to be made up as soon as the Railway, &c., shall have been completed and furnished.
Clause 13 - -	Railway to be maintained in good repair, and fully provided with rolling-stock and plant adequate to the service thereof, throughout the term of 99 years, to the satisfaction of the Government.
Clause 14 - -	Provides for half-yearly Revenue accounts under such heads and divisions as Government shall prescribe.
Clause 15 - -	Provides for payment into Treasury of gross receipts, at such times and in such manner as Government may direct, and for money being drawn for purposes sanctioned by the Government.
Clause 16 - -	Provides for payment by Government half-yearly in London of interest at the rate of 5 per cent. per annum on the capital paid into the Treasury, throughout the term of 99 years.
Clause 17 - -	Provides for payment of interest at above rate and throughout the said term on capital in excess of sum stated in contract, which may be required to complete the line.
Clause 18 - -	Provides that in case of any alteration in the line, by the order of Government, any authorised expenditure shall be considered properly expended.
Clause 19 - -	Provides that a reserve fund may be established for making good deterioration; that the profits are in the first place to be applied (reckoned at the rate of exchange of 1*s.* 10*d.* the rupee) in or towards the discharge of the interest payable by the Government; that the accumulated interest debt is to bear simple interest at the rate

	rate of 5 per cent. per annum; that when the profits exceed the amount payable on account of guaranteed interest, one-half of the residue or excess is to be paid to, or applied for, the use and benefit of the Railway Company, and the other half, reckoned at the rate of 1*s.* 10*d.* the rupee, is to be applied in the payment of the simple interest on the debt, and then towards extinction of that debt itself. If at any time within the said term of 99 years, the debt and the interest thereon are discharged, the Company shall be entitled to the entirety of the surplus net receipts.
Clause 20 - -	Provides that the Government mails and post-bags, and the guards, and other servants of the Post Office, in charge thereof, shall be conveyed free of charge; that troops, &c., shall be conveyed, when on duty, the officers, &c., in 1st class carriages at 2nd class fares, and the troops and European artisans in 2nd class carriages at the lowest fares, and all other persons at the lowest fares; that stores shall be conveyed at the lowest rate of their class, and that these privileges are to be enjoyed in preference to, and priority over, the public use of the Railway.
Clause 21 - -	At the expiration of the term, the land and all buildings, &c. to become the property of Government, and the Government shall be bound to purchase the rolling and other moveable working stock at a fair value to be paid within four months.
Clause 22 - -	Permits the Company to voluntarily surrender the line any time after it has been finished for three months, on six months' notice to Government, who shall repay the capital expended, less claims and demands then existing on the Revenue account. All claims of the Government on account of interest are, however, to cease.
Clause 23 - -	Allows the Government the option of purchasing the Railway, &c., within six months after the expiration of the first 25 and of the first 50 years, subject to any debts and liabilities incurred to the Government or other persons, but exclusive of any arrears of the interest paid by Government; the sum to be paid being the full amount of the value of all the shares and Capital Stock calculated according to the mean market value in London during the three years immediately preceding.
Clause 24 - -	Relates to default on the part of the Company in the payment of the capital or the execution of the works, or in working, or in any other way; making it lawful for Government on three months' notice to assume possession of the Railway, on payment within six months of the capital, less debts.
Clause 25 - -	Default in properly maintaining works, when line is open. Government may enter on and do what is necessary, and set-off the expenses against the interest payable.
Clause 26 - -	Government may commute the re-payment of capital under any of the foregoing clauses by an annuity payable half-yearly in London, during the residue of the term of 99 years, except in so far as relates to any paid-in capital which may be unexpended. The rate of interest to be used in calculating the annuity is to be the average rate of interest during the preceding two years received in London upon public obligations by the Secretary of State.
Clause 27 - -	Provides for refund of surplus paid-in capital.
Clause 28 - -	Relates to method of communicating notices, directions, approval, sanctions, &c.
Clause 29 - -	Provides for an Agency in India and the place to be located at.
Clause 30 - -	The Government to promote the necessary legislation to enable the Company to fulfil the objects of their undertaking.

XI.—Minor Conditions of the present Contracts with the Guaranteed Railway Companies requiring Revision or clear Interpretation, if made applicable to other Companies.

Clause 3. *Provision of "Land which shall be required for the said Railway and the Works connected therewith, and proper Stations, Offices, Warehouses, and other Conveniences for the same."*—A more precise definition of the purposes for which land is to be made over at the expense of Government is called for. The term "*conveniences*" has led to dispute as to what is a convenience, especially as respects land for bungalows for Engineers, Inspectors, Drivers, &c. The Government of India last referred the matter to the Secretary of State, in Railway Despatch No. 85, dated 14th September 1866, and the point is, are dwelling-houses conveniences under the terms of the contract, the grant or refusal of this sort of accommodation being a question of wages? The term "conveniences" is repeated in other clauses. The more liberal and simple course would be for the Government to give the land for whatever objects it authorised capital to be applied.

Clauses 6, 7, and 19. *Rate of Exchange.*—The *par* rate would be more convenient in many ways. The present rate of 1 *s.* 10 *d.* is not, however, disadvantageous to the Government. Thus, viewing the loss by exchange in the capital transactions as a final disbursement, the result of the gain by exchange in accounting for the profits, is an annual profit to the Government on the whole Railway capital equal to about one-tenth of the shareholders' profits. In other words, the guarantee of 5 per cent. is really covered when the shareholders' profits are a little over 4½ per cent. This is on the supposition that one-fifth of the working expenses are paid in England, and that the rate of exchange of the day for remittances from India to England is 2 *s.* for the rupee. (See *Colonel Strachey's Note, dated 12th September* 1863, *on the Financial bearing of the Railway contracts on the interests of the Government of India.*)

Clause 8. *Regulation of the Train Service, Fares, and Rates.*—It has been argued that the Government having once approved the fares and rates, without a proviso that they shall be subject to revision within a stated period, has no power under this clause to demand an alteration till the net receipts exceed the rate of 10 per cent. on the outlay. The Court of Directors, in the 18th paragraph of their Despatch, No. 27 of 1849, which should be read with the contract, suggested that, in the first place, the Government in India would "do well to approve of whatever rates of fares may be thought most suitable for the circumstances of the country only for one year, in order that the subject may again necessarily be brought under attention at the close of that period." A perusal of the paragraph quoted shows that the number of *classes* of passenger vehicles was also intended to be determined by the Government. Experience has shown that a system of maximum fares for different classes, within which alterations may be made by the Railway Companies, would be productive of less friction, and provide adequately for the interests of the public, if supplemented by legislation as in England for "Parliamentary" trains, suited to the poorer classes of both natives and Europeans. There seems no necessity for exercising any control over alterations within the maxima whether for passengers or goods, provided that due notice of such be, in all cases, given to the public. The maxima might be subject to revision, say, quinquennially.

Clause 15. *All Monies to be paid into the Treasury at Calcutta* (*Madras or Bombay*).—It seems desirable to allow of monies (receipts) being paid into any other treasuries on, or near, the line of Railway, which shall not involve a longer lead for the Company.

It has recently been ruled, in accordance (apparently) with the spirit of the 22nd paragraph of the Despatch of the Court of Directors, No. 27 of 1849, that interest shall be allowed on deposits of receipts in the Government Treasuries. This should be provided for specifically in future contracts.

Clause 19. Provides, amongst other things,—(1) for deducting from the receipts "such sum, if any, as with the consent of the Government may be appropriated and set apart for restoring and making good any deterioration of the Railway and works, or stock and plant," as a reserve fund; (2) for payment of simple interests at the rate of 5 per cent. on advances made by Government on account of guaranteed interest. With reference to the first point it would seem desirable to make the formation of a reserve fund for the objects stated compulsory, and to specify a period within which it must be started, with some particulars as to the amount of contribution and the limits of the fund, based on the outlay on the works renewable out of it. On the second point, it would be well to determine whether the Companies are entitled to claim a set-off of interest on the capital deposited with the Government in excess of their immediate withdrawals. A reference to the Minutes of Evidence taken before the Select Committee of the House of Commons of 1858 on the East India Railways (Questions Nos. 447–9 and 2208–12), also to Mr. Freshfield's letter appended thereto, will show that the Companies looked for consideration in the matter, though the contract is silent on the subject.

It should also be specified clearly at what place, and at what rate of exchange, surplus profits are to be paid over for the use of the Company. The spirit of Clauses 16 and 25, and of the contract generally, is in favour of London, as the place at which all dividends are to be paid, and 1 *s.* 10 *d.* as the rate of exchange for all transactions.

Clause 20. *Referring to Mail and Troop Service.*—This clause has been the source of more dispute than any other.

It should be so modified as to define (1), what are mails, whether they include banghy parcels, &c., private or service; (2), with whom rests the responsibility for loss or injury in transit; (3), at whose cost vehicles for their conveyance, including sorting carriages and their special fittings, should be provided, repaired, or hauled; (4), by whom mails should be loaded and unloaded from the Railway vehicles; (5), at whose cost apparatus for taking up mail bags by, or detaching them from, trains in motion, and other conveniences of the kind, should be provided; (6), under what conditions special or extra trains for mails or troops are to be furnished.

Clause 21. *The Reversion of the Land, with the Fixtures thereon, to the Government at the end of the Term of the Concession.*—This was originally contemplated, but the clause is nullified by the following one, by which the Companies have the right of surrender at any time on giving six months' notice, and of demanding the return of their capital, which may, however, be repaid in an annuity (Clause 26).

Clause 22. This condition of surrender was conceded rather than a nominal guarantee of *dividend* instead of *interest* which the money market demanded. The result is that the Companies have in reality obtained a guarantee of dividend, with the additional advantage of being able to demand payment of their nominal capital at any time, an advantage of which they will not be so blind as to fail to avail themselves before the expiration of the term of the contract, however prosperous the undertakings may be. Attempts were made to modify this clause (22) in some of the later contracts, by limiting the power of surrender to the end of the first 50 years of the term, but unsuccessfully.

It would seem preferable to cancel the surrender clause and to concede a direct guarantee of *dividend* in future, and to provide for the reversion of the land with the fixtures by effluxion of time, by guaranteeing out of revenue a sinking fund for the extinction of that portion of the capital laid out on them.

Clause 23. *Right of Government to Purchase the Railways at the Expiration of Twenty-five or Fifty Years.*—In Despatch, No. 16, dated 24th February 1859, paragraph 42, Lord Stanley recorded that it may be expedient to exercise this power when either of the periods arrive. The embarrassment which might ensue to the Government from the circumstance that the terms of most of the contracts expire about the same time, might perhaps justify this, unless the Companies should be willing to concede a release of the surrender clause on condition of the Government not exercising their right to purchase. It should, however, be remembered that though the Companies surrender at the nominal value of their capital, the Government can only purchase at the market value. Sir Barnes Peacock entered very fully into the subject of the surrender and annuity commutation clauses, which are intimately connected with this purchase clause, in his Minutes of the 7th and 25th October 1858.

The Right Honourable Mr. Laing was of opinion (Minute of 1st April 1861) that it would be convenient if a fixed price could be settled in each case, at which the Government could, at any time, take the whole of the shares over. In the case of the existing Railway Companies, this rate, he thought, might perhaps be about 125 *l.* for 100 *l.*

Clauses 22 to 24. *Power of the Government, in the event of a Line coming into its Possession by Surrender (Clause 22), Purchase (Clause 23), or Breach of Covenant, such as Failure to work the Line satisfactorily, &c. (Clause 24), to deduct from the Capital to be repaid to the Shareholders the Arrears of Interest already paid.*—The following extract from an article in the *Westminster Review* for October 1862 (page 363) suggests the desirability of making it perfectly clear whether, in the event of the capital being repayable by Government, the Government has the power to reimburse itself, in the first instance, by deducting the advances made on account of guaranteed interest:—

"Were the latter contingency (working at a loss) to arise, the Companies would probably avail themselves of their right to surrender the works to the Government. This may be done 'at any time after any portion of the line has been opened for a period of three months, upon giving six months' notice to the Government, who would then have to repay the whole amount that has been expended, with their sanction, on the undertaking (Surrender-clause 22). This is a most liberal and praiseworthy arrangement. If these lines cannot be worked except at a loss, it is perfectly just that the Indian Government should bear the burden of that loss. Unfortunately, there is great uncertainty whether or not the shareholders, whose line has been made over to the Government, are to receive back the full amount of the sums subscribed by them. In order to make clear our meaning, let us suppose the case of a line of which the total cost is ten millions, which it takes ten years to construct, and that during these years the Government has paid 5 per cent. on the amount raised from time to time, the result being, when the line is opened, two millions have been so advanced. If, three months after it has been in operation, the Company should resolve to ask the Government to take the line off its hands, would the Government repay the ten millions which had been expended, or would it deduct the two millions it had advanced? That is, would each shareholder receive back every one hundred pounds he had subscribed, or would he receive instead only eighty pounds? We are well aware that much might be said as to the propriety of the Government making the reduction; but we also know that the majority of shareholders imagine they will either receive, under any circumstances, 5 per cent. interest for money invested in Indian Railways, or else have the option of demanding repayment of their capital intact. Much future heartburning and disappointment will be prevented if an official declaration were made of the course which, in such a case as the foregoing, the Government means to follow."

It would seem that under Clauses 22 and 23 (surrender and purchase) Government cannot recover its advances of interest except from the moiety of the surplus profits. In case of assuming possession by default (Clause 24) the position was doubtful, but in the latter contracts, *e. g.*, that for the Jubbulpoor line, it is clearly stated that the intention of the Indenture is that the Railway Company shall, under all circumstances, receive back the capital properly expended, and that re-entry shall be the only penalty to which the Company shall be liable in case of default. All that seems necessary is that it shall be declared that the intention of the older contracts is that expressed in the later ones. It will be observed that under Clause 25, in the event of the Company failing to keep the Railway and works in repair and condition, the Government may enter thereon and execute what is necessary, setting off the costs thereof against the guaranteed interest, and

and if that do not cover the cost, against any other monies which shall on any account whatever be, or become, payable to the Railway Company. In at least one case, therefore, the ideas of the majority of shareholders, according to the Reviewer, are not quite in accordance with the plain meaning of the contract.

The only additional points on which it seems desirable that provision should be made in future contracts are:—

1. For the formation of an insurance fund out of revenue to cover losses of goods at stations and in transit, and destruction or injury of buildings, stock, &c., by fire or otherwise.

2. For power to control, in an effectual manner, the Agent, without waiting for the result of a reference to England. It might be provided that, in the event of serious misconduct, inefficiency, contumacy, or breach of contract, the Government should have the power of suspending the Agent and of nominating a person to conduct the duties pending the action of the Directors. At present the Government has no means whatever of controlling a contumacious or inefficient Agent, beyond, in the event of breach of contract, fulminating an idle threat as to the possible consequences. The existence of this power would tend to such an appreciation on the part of the Agent of the nature of the relationship between the Government and the Companies as would obviate the necessity for its exercise in all probability; while the Companies' other servants would still be subordinate to the Agent only. This amount of power ought to be conceded by the Companies; to ask for more would, it may be expected, be met by a point-blank refusal. From what has been previously stated, however, it will be seen that high authorities are of opinion that the power of dismissal, not only of the Agent, but of all servants of guaranteed Railway Companies, should rest with the Government. It is most improbable that any body of men would be found to undertake the duties of Directors on such conditions.

XII.—Suggestions for the Modification of the Terms of Subsidy under which the Government of India have proposed to encourage Railways.

In Despatch from the Secretary of State (Lord de Grey and Ripon), No. 30, dated 25th June 1866, the Government of India was requested to carefully consider the subject of the conditions of the draft agreement with the Indian Branch Railway Company, which has obtained a preliminary and provisional concession of a system of Railways in Oudh and Rohilkhund, aggregating about 800 miles. The Secretary of State, at the same time, forwarded copies of four collections of correspondence between himself in each case, and

(Part I.) The Indian Branch Railway Company.

(Part II.) The Great Indian Peninsula Extension Railway Company, referring to the proposed Indore Line, and containing the objections of the Directors to the conditions of the draft agreement for its construction.

(Part III.) The Great Indian Peninsula Railway Company, referring to the construction of certain branch lines, and the terms on which that Company would work and maintain them if constructed by other Companies.

(Part IV.) The Bombay, Baroda, and Central India Railway Company, relating to the proposed branch from Ahmedabad to Wudwan.

It was Lord de Grey's desire that the conditions proposed for the construction of Railways under subsidy should be reconsidered "with reference not to the amount of subvention, but to the clauses in the draft agreement on other subjects, such as the powers of Government, penalty of forfeiture, &c. &c."

Part I. of the correspondence shows that the modifications and explanations of the original draft of conditions for the Oudh and Rohilkhund Lines, to which the Government of India consented in March 1865, rendered them acceptable to the directors of the Indian Branch Company, with exception of Clauses LXII. to LXV., LXX. and LXXI. In these the Secretary of State had agreed to certain further modifications, though not to the extent sought by the Directors. The attached copy of the conditions (*not reprinted*) shows them as they now stand, and on the interleaved pages will be found such of the demands of the Directors as have not been fully acceded to.

There is nothing in the correspondence to show that the Directors positively accept or reject the modified conditions, though in the 5th paragraph of the Managing Director's letter, No. 300, of the 31st November 1865, the Directors state that the opening of the Cawnpoor and Lucknow Line will, no doubt, restore the confidence of the public in the undertaking, and that they will "then gladly avail themselves of the earliest opportunity to execute the agreement." In the 7th paragraph of the Managing Director's letter

No. 39,

No. 39, of the 27th January 1866, however, the Directors observe that the conditions "are still in the penalty clauses so stringent and severe that, in the present financial position of the Company, the Directors would not feel justified in accepting them."

The Secretary of State evidently considers that the modifications "have not had the desired effect," and the present position of the relations of this Company with the Government is, that they have obtained a loan from the Government of 60,000 *l.* for three years at 5 per cent. per annum, on the condition that at the end either of four years from the date (March or April 1866) of the arrangement, or of two years from the date of the Lucknow and Cawnpoor Line being opened for traffic, whichever may be the shorter period of the two, the Company shall either execute a contract, in terms to be approved by the Government of India, for the construction of the whole system of the Company's Railways, or shall transfer to the Government of India, in full property, the Lucknow and Cawnpoor Line, on being reimbursed the amount expended by them upon it, less any debt which may be due from them to the Secretary of State, or to the Government of India.

A further condition of the loan is, that no further sum beyond the sum of 400,000 *l.*, stated by the Company to be required to complete the line between Lucknow and Cawnpoor, shall be raised, except by call on the shareholders, without the previous assent of the Secretary of State in Council.

The conditions for the Indore Line are practically the same as for the Oudh Lines. They have been rejected by the Directors of the Great Indian Peninsula Extension Railway Company, who consider that the proposed subsidy is far too small to justify the Government imposing any conditions on the undertaking which might not be equally well demanded for the public protection if no subsidy were granted.

The Directors proposed in the first place certain alternative terms, and subsequently certain principles as a basis of negotiation, which will be found stated at page 61 of this Note, and it would seem to be with reference to the latter, more especially that the Secretary of State has requested re-consideration of the clauses of the draft conditions relating to the powers of Government, penalty of forfeiture, &c.

The Directors of the Great Indian Peninsula Extension Railway Company have not stated their objections to the special conditions proposed for the Indore Line, *seriatim*, but after allowing for the application to India of the powers in the matter of inspection, &c., vested in the Board of Trade in England, to which the Directors assent, the copy of the conditions put up (*not reprinted*) shows the clauses objected to by them.

The essential points in which the Indore draft conditions differ from those for the Oudh and Rohilkhund Lines are the following:—The conveyance of troops, Government stores, &c., under the former is to be charged for at ordinary rates, with compensation for loss in the event of the ordinary traffic being interfered with by the Government taking up the whole of the means of transport; under the latter, at two-thirds thereof, with no such proviso as to compensation. The condition of purchase by Government is in the former the same as in the case of the guaranteed Railways, except that the periods at which the power may be exercised are to be reckoned from the date of opening, instead of from the date of the contract. In the case of the Oudh and Rohilkhund conditions, the Government can exercise the right of purchase after the first 20 years from a specified date, and thereafter, after every 10 years of the term, the purchase money being the capital expended, together with 5 per cent. thereon, or an annuity for the remainder of the term equal to the average of the profits of the five years next preceding the period of purchase, or equal to the profits of the last year of those five, at the option of the Company.

In other respects, the two drafts are practically identical; and as the conditions of the Oudh and Rohilkhund Lines have been already re-considered and modified, clause by clause, it will be more convenient to deal with them in considering the subject of their further modification, and there can be no objection to this course, as whatever may be the terms finally resolved on, the principles on which they are based will, it may be taken for granted, be of general application. The clauses of these conditions, which seem to be indicated for re-consideration, are, as respects the powers of Government, Nos. IX., XXIV., XXXIII., XXXVII., LIV., LV., LVI., LVII., LXII., LXVII., LXVII. A., LXVIII., LXIX., and LXX.; as respects penalty of forfeiture, LII., LIII., LX., LXV. and LXXI. These will now be considered separately.

Powers of Government.

IX.—It has been explained that the intention of this clause is merely to reserve the right of Government to call for drawings and descriptions of works, &c., when wanted.

Such a clause cannot be seriously objected to so long as the State gives a rupee towards the Railway.

XXIV.—*The Position of all Stations to be approved by Government.*

This is a clause that might be left out if the Government had not to provide the land. So long as it has, the clause should be maintained.

XXXIII.—*Binds the Company to provide such Establishments of Clerks, Engine-drivers, Guards, Signal-men, Points-men, Gates-men, Police, and so forth, as shall be necessary* (in the Indore

Indore conditions, "*in the opinion of Government,*") *for the working of the Traffic and the Security of the Public.*

If the State be armed with legislative power to secure the safety of the public, this clause might be omitted. Self-interest alone will make a Company keep up a proper staff for working the line.

XXXVII.—*Tariff of Charges.*

A maximum tariff, with legislative provision for Parliamentary trains for the poorer classes of Europeans and Natives, would render any interference unnecessary. The power of reducing the tariff as in England, when dividends have exceeded 10 per cent. for three years, might be reserved, with a condition preventing the apparent reduction of the dividend by a nominal increase of the capital, a manœuvre that has been practised. The maxima might be open to revision, with the consent of the Government and the Company, decennially or quinquennially.

LIV. to LVI.—*Conveyance of Government Troops, Stores, &c.*

These conditions should be maintained as in the conditions for the Oudh and Rohilkhund Lines. Similar conditions are reserved in England where the Railways receive no aid whatever from the Government.

LVII.—*Conveyance of Mails free.*

Sir Charles Wood, when Secretary of State, was opposed to any yielding on this point. It would probably be expedient to pay the actual cost of the service. It is a constantly increasing service, and, whether paid for or not, seems to be regarded with great disfavour by all Railway Companies. Its cost, though small in the outset, may prove a heavy burden in years to come.

LXII.—*Deposit of Caution Money.*

There should be some material guarantee for the prosecution of the works, lest the field be occupied to no purpose, and to the exclusion of other promoters. The amount to be deposited, as reduced by the Secretary of State, cannot be a source of difficulty to any sound Company.

LXVII. and LXVII. A.—*Surrender at end of Term of the Land and immoveable Property thereon.*

This clause might be made acceptable by requiring the Company to establish, under suitable and secure guarantees, a Sinking Fund out of revenue for the extinction at *par* of the whole capital within the term of the concession. The payment of the actual cost of the mail service might be treated as a *quid pro quo* in the negotiations on this point.

LXVIII. and LXIX.—*Purchase by Government.*

The impossibility of foreseeing the position of Government or the requirements of the public, in respect to Railways, after a lapse of years, renders it expedient to reserve a right of this kind to the State. The intervals proposed are unnecessarily short, every 10 years, and might be altered to every 20 or 25 years of the term.

The amount to be paid might be determined as proposed, or a fixed sum, as suggested by Mr. Laing, say 125 *l.* for 100 *l.* of nominal capital, might be substituted. The amount at credit of the Sinking Fund should become the property of the shareholders in the event contemplated.

LXX.—*Surrender by Company.*

A Company must be allowed the power of withdrawing from the undertaking. The question is, what rights shall they have in the fixed structures on the land, which would necessarily revert to the State? Holding that the State should not extend its assistance to lines of doubtful success, or, if it does so, that it should be prepared for disappointment in securing its object, a Railway, it does not seem unreasonable to allow the Company to retain all their buildings, &c., on payment of a ground rent, on repayment of the amount of subsidies received, and on the condition that the amount at credit of the Sinking Fund lapsed to the State. The State would still secure an ordinary road for nothing. The State should, however, have the option of taking over the Railway as it stands at a fair valuation.

Penalty of Forfeiture.

LII. and LIII.—*Payment of Subsidy when to cease.*

LX.—*Breach of Contract.*

LXV.—*Forfeit of Deposit of Caution Money.*

These are clauses that, it would appear, must stand in any contract. Clause LXXII. saves the Company in the event of circumstances arising beyond their control.

LXXI.—*Specifies*

LXXI.—*Specifies in what events Government may re-enter and take possession of the land and everything fixed thereto.*

These events are:—

(1). Non-completion of the line to time, or non-supply of all necessary rolling-stock and other conveniences.

(2). Default in working and maintaining after opening, and non-remedy of the same within six months.

(3). Breach of contract under Clause LX.

(4). The Company committing an act of bankruptcy.

On the presumption that such events as these would be the result of misfortune, the Government would accept no risk in agreeing specifically to the same conditions as are proposed above under Clause LXX. in case of surrender.

The terms as proposed to be modified may be briefly summarised as follows:

1. Term of concession 99 years.

2. Land for way and works free.

3. A mileage annual subsidy in aid of revenue from date of opening for a certain number of years.

4. A period to be fixed within which the line is to be opened, and any excess thereof to be deducted from the term for which the subsidy is agreed to be paid.

5. A Sinking Fund to be established, under secure guarantees, out of Revenue, for the extinction of the capital at *par* within the term of the concession.

6. Deposit of caution money.

7. Provision for maximum tariffs, with "parliamentary" rates, and special rates for mails, public stores, soldiers, sailors, prisoners, paupers, &c.

8. Regulation of the mail service.

9. Right of re-entry by Government in case of failure to complete and open, work or maintain the lines, of breach of contract, or of an act of bankruptcy.

10. Power to the Company to surrender at any time.

In case of re-entry or surrender, the Company to retain possession of all property, except the land and roadways formed thereon, subject to a ground rent for the land on which the buildings may stand, to the repayment of the subsidies received, and to the lapse to the State of the amount at credit of the Sinking Fund.

11. Power to Government to purchase the line at intervals of 20 or 25 years from date of opening, the amount at credit of Sinking Fund lapsing in this event to the shareholders.

12. The land with the way and works, rolling stock, &c., to be surrendered to Government in good order at the end of the term, and the Sinking Fund to become the property of the shareholders.

The objects sought to be obtained by a system of subsidy or subvention are two-fold; (1) the withdrawal of State interference in the construction and working of the Railway, in view to securing the advantages of independent enterprise; (2) the precise limitation of the liabilities of the State. The latter object can only be gained by a fixed annual mileage payment, such as is contemplated in the scheme of subsidy proposed by the Government of India. The scheme subsequently suggested for the Rajpootana Railway by Colonel Strachey, does not secure this object. It may be considered almost certain that, be the conditions of subsidy under consideration modified as they may in the clauses referred to by the Secretary of State, the response of the money market will be as unsatisfactory as it has hitherto been, unless the amount of subsidy be increased, or the manner of paying it be modified. The table at page 47 of this note, shows the probable annual sums required to make up the dividends under the various systems therein specified to the minimum demanded by the public, viz., five per cent. Allowing that a company with a subsidy, and practically, therefore, uncontrolled, would construct as cheaply as is there assumed the Government would, and that interest during construction would be charged to capital, the total cost of an ordinary line may be estimated at 13,000 *l.* a mile, and on the opening of the line in the fifth year after commencement, the annual demands per mile to make up the dividends would be approximately as follow:—

Years - - -	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.
	£.	£.	£.	£.	£.	£.	£.	£.
Amount per mile -	515	450	420	360	290	210	95	28

or in all, 2,368 *l.* in eight years. The maximum terms of subsidy at present entertained are, a payment of 2,000 *l.* spread over 20 years, exclusive of special subsidies for extraordinary works, which might increase the ordinary mileage subsidy by one-sixth or one-eighth. If, then, the temper of the money market is rightly apprehended, it can scarcely be expected that any terms less favorable than the following would be accepted, viz.:—

Years	5th.	6th.	7th.	8th.	9th.	10th.	11th.	12th.
	£.	£.	£.	£.	£.	£.	£.	£.
Amount per mile	500	450	400	350	300	200	100	50

with a continuance of 50 *l.* a year until the profits, excluding the subsidy, amounted to five per cent. In this view, some power of inspection of the accounts and audit, after the opening of the line, would be demanded in the interests of the State, but the reimbursement of the amounts paid might be stipulated for out of half surplus profits in excess of five, or even say six per cent. In these terms, even, the elements of risk of the dividend falling below what investors are said to look upon as a *sine quâ non*, are so manifold that their acceptance may be regarded as extremely improbable. But should this surmise prove incorrect, it would be more to the interests of the State to concede these terms than those proposed in the previous part of this note.

It is to be understood that the terms of subsidy, as revised, are meant to be regarded as a maximum, applicable only to 1st Class Railways (single lines) of solid construction.

APPENDICES.

APPENDIX TO SECTION VI.

Principles on which Railways have been encouraged in other Countries.

United Kingdom.—The United Kingdom has been covered with a net-work of railways, at an outlay of about 456 millions sterling. The system now consists of about 13,300 miles of railway, and, in a country possessing almost every advantage in favour of cheap construction, the cost per mile has been far greater than that of any other Railway system in the world.

The cost per mile over the whole system is reduced by every addition now made. Up to the end of 1865, the cost was as follows:—

	£.
England	41,033
Scotland	22,820
Ireland	14,360
Average	34,300

But since 1848 the cost has been:—

	£.
England	14,559
Scotland	7,244
Ireland	7,303
Average	11,823

The causes of the high cost of railways in England have been summed up in a recent article by Mr. Baxter in the journal of the Statistical Society as due to—(1) the purchase of experience; (2) experiments in the broad gauge and the atmospheric railway; (3) Parliamentary contests and expenses; (4) high cost of land ordinarily, and the exactions of landlords for imaginary damages by severance, &c.; (5) the great preponderance of double lines over single (6,081 miles double against 3,170 miles single), compared with other countries; (6) the large sums absorbed by metropolitan Railways and termini, as also by termini in other great towns, by docks, steamers, and purchase of canals; (7) the hilly nature of the countries whose trade and population are greatest, and which are most thickly studded with Railways.

The

The construction of single lines has much increased of late years in England, and the less cost of the Scotch and Irish lines is due, to a large extent, to the greater proportion of single lines in those parts of the United Kingdom. Thus in 1857, 25 per cent. of the English, 32 per cent. of the Scotch, 61 per cent. of the Irish, and 30 per cent. of the whole were single. In 1865, 34 per cent. of the English, 57 per cent. of the Scotch, 74 per cent. of the Irish, and 43 per cent. of the whole, were single.

In 1834 there were about 200 miles of railway open in the United Kingdom. From 1834 to 1840, the average number of miles opened per annum was 133. From 1840 to 1845, it was 240; from 1845 to 1850, it was 812; from 1850 to 1855, it was 367; from 1855 to 1860, it was 425; from 1860 to 1865, it was 571. Thus, the average rate throughout the period has been 420 miles of railway opened per annum; but if the period be reckoned from 1830 when the first locomotive was run, about 380 miles per annum.

Mr. Baxter divides the history of railway progress in the United Kingdom into five periods:—

(1). The period of experiment from 1820 to 1830.
(2). ,, infancy from 1830 to 1845.
(3). ,, mania from 1845 to 1848.
(4). ,, competition by great companies from 1848 to 1859.
(5). ,, contractors' lines and companies' extensions from 1859 to 1865.

Several of the lines that have been formed are unnecessary, the result of uncontrolled competition. Some are bankrupt, others on the verge of it. The profits over all have averaged of late a trifle over 4 per cent. per annum; railway investments in the present day yielding a return of only about 5 per cent., notwithstanding that the fares and tariff are higher than on any other railways in the world.

This is the result of private enterprise in a country in which "the spirit of the laws and traditions renders the State averse from interference in commercial enterprises, and somewhat reserved even in the exercise of that control over them, which would seem to be indispensable to the general interests. Powers of an unusually extensive and durable character were, therefore, readily granted to all Railway Companies in this country, and monopoly after monopoly grew up fostered by the Legislature and favoured by the public." "Lardner," p. 506.

Mr. Locke, in his address, on election as President of the Institution of Civil Engineers (January 1858), spoke as follows:—

"The Government of France, * * * * * while strongly controlling, has also liberally fostered this kind of enterprise; while the English Legislature, on the contrary, unable to guide, has suffered, if not encouraged, hostile or selfish interests to encumber and pervert it. * * * * * It is, in fact, a contrast between method and confusion, in a matter of supreme national interest; there, led and guarded by the sovereign power, here, ungoverned and undefended, left to the chances of competition, abandoned to every kind of attack, and only conscious of authority in the shape of exactions." This last remark was made apparently with reference to the relation of the Companies with the Post Office, in favour of which very comprehensive powers were reserved in the interests of the Nation; but the service has to be paid for, and costs the country at present about 570,000 *l.* a year.

In the year 1844, however, a statute was enacted whereby the Legislature has the opportunity of recovering its position, in respect of all the Railways made thereafter, on the expiration of 21 years from the date of the passing of the Acts for their construction, severally. 7 & 8 Vict. cap. 85.

This Act came into operation in 1865, and affects all but about 2,000 miles of the existing system.

The most important provisions of the Act are:—

"If after 21 years from the passing of any Act for a Railway, the profits should exceed 10 per cent. per annum, the scale of tolls should be revised, and a new one fixed; such revised scale to continue for 21 years.

"The Lords of the Treasury to have the right of purchasing any future Railway after the expiration of 21 years, upon payment of a sum equal to 25 years' purchase of the divisible profits, estimated on the average of the three preceding years; but should the proprietors think their prospects more favourable than such average, the amount of purchase money to be decided by arbitration.

"Existing Railways to be exempt from the Act, and branch lines not longer than five miles not to be considered as new railways.

"No purchase of a line to be made without an Act of Parliament, and three months' notice to be given.

"A 'Parliamentary Train' to run at least once every lawful day, at a speed of not less than 12 miles an hour, including stoppages; to stop at every passenger station; the carriages to be seated and protected from the weather; the fare not to exceed a penny a mile.

"Parliamentary trains to be exempt from the passenger tax of 5 per cent. on receipts. Special rates for troops, &c."

A Royal Commission was appointed in 1865, with reference to this Act, "to inquire into the economical question connected with our Railway system; that is to say, the cost of conveyance on Railways, and into the charges which are made by Railway Companies to the public."

"Without an accurate knowledge of these important facts," writes Mr. W. Galt, "it would be utterly impossible for the Legislature to deal satisfactorily with our Railway system; it could neither comprehend the extent of the evil it has inflicted on the country on the one hand, nor devise the necessary remedy on the other."

In the early days of railway enterprise, Mr. Galt was the advocate of State control, and failing in obtaining that, had much to do with the enactment of the statute just referred to. In 1865 he called attention to this statute in a work entitled "Railway Reform," and addressed a letter on the subject to the President of the Board of Trade, at the 5th page of which occurs the following passage:—

"Railways in this country were formed on no fixed system for the national benefit. A great monopoly was established with the consent of Parliament, and the Government and the people were left to make the best terms they could with the monopolist Companies. An enormous power was then created and left in their hands, to be used almost as they pleased, although in some respects the shareholders have been left with insufficient protection. * * * * * The history of our highways has fully shown the necessity of having them under the control of Parliament. * * * * * Most Foreign Governments have kept a larger power over the public Railways of the country than has been retained by the British Government, and have retained the reversion in the land and Railways on the expiration of the long terms of years for which the special rights and privileges were conceded. Some of the Foreign Governments have assisted the Companies with large grants of public money. That has not been the policy of the British Government.

"Which has been the best policy may be a doubtful question; but it can hardly be doubted that it would have been a wise policy in the British Government to have retained an ultimate reversion in the British Crown."

January 1865. April 1866. Mr. Galt's work has been favourably reviewed on two occasions in the *Westminster*. In the number for January 1865 occurs the following passage:—

"The extreme jealousy with which the interference of the British Government in commercial enterprises is regarded, and other prudential considerations, have effectually prevented successive Ministers from taking the initiative in laying down a system of Railways well adapted for the accommodation of the public; everything was left to private enterprise and speculation."

And in the number for April 1866, the reviewer writes:—

"It is an unquestionable property of the existing system of Railway management, that it unites in itself all the vices due to indefinite division and want of co-operation, together with all those due to an intimate combination of interests severed from, and most frequently opposed to, the general interests of the community."

The policy pursued by the British Government in regard to its Railway system has resulted in its general condemnation by persons of all classes, with but one exception, and that is a class which that policy has fostered, viz., Parliamentary and Railway Agents.

The Royal Commission have not as yet made their Report, it is believed. The subject they have to consider is beset with difficulties, and these difficulties are not diminished by the circumstance of there being 210 Directors of Railway Companies in the Legislature, 49 in the Lords, and 161 in the Commons.

It should be mentioned that from 1817 up to 1842, the date of the last loan, 11 railways in Great Britain received loans from the Public Works Loan Commissioners, aggregating 490,600 *l.* at 5 per cent. interest, in several instances reduced to 4 per cent. The loans have been nearly all repaid.

In Ireland all the preliminary measures were taken to avoid the chief errors which had been permitted in England, by the appointment of a Commission to inquire into the manner in which Railway communication could be most advantageously promoted.

The Commission recommended that loans should be made in aid of the construction of Railways at a low rate of interest secured on the guarantee of a local rate, in aid of the profits of the line, with an additional rate commencing 10 years after the opening of the line and payable by the Company as a sinking fund to replace the whole amount of the loan. No steps were taken to carry out the recommendations; but, ultimately, the Government extended aid to the Railway Companies by loans, amounting since 1832 to 2,715,804 *l.* on rates of interest varying from 5 to 4 per cent. Somewhat more than a moiety of this sum has been repaid, but quite recently other loans of small amount for 20 years at 4 and 5 per cent. have been made. In one case only was a loan made on the terms of the Commissioners at 3½ per cent. with 1½ per cent. paid out of their own funds by the Company as a sinking fund.

The counties which guaranteed the rate obtained a Railway 76½ miles long at a cost, extending over eight years, of less than 38,000 *l.*; but any further extension of the system has been strenuously opposed.

Mr. Baxter, in the article already quoted, while showing that the Departments, Communes, and Municipalities in other countries, such as the United States, France, Spain, Italy, have the power to take shares or debentures, or vote subventions or a guarantee of interest, advocates a similar power being conferred on parishes and boroughs in England, so as to secure rural and agricultural lines, for which there is great need.

The question of the State purchasing the Irish Railways has recently been raised, and seems to be regarded with some favour by the present Government.

UNITED STATES.—In the United States of North America Railway enterprise has been encouraged in a variety of ways, but chiefly in the following :—

(*a*) The grant of land free or at a nominal price.

(*b*) The taking by the State of a number of shares, generally accompanied by a loan in State stock delivered at par, which the Company negotiated at its own risk.

(*c*) The conversion of this loan into a subvention, in many cases.

(*d*) The grant of lands contiguous to the line of Railway, so as to engage the company's interest in the promotion of the settlement of the country. In this case the State has generally reserved a per-centage on the gross receipts.

In granting concessions the States have reserved the right of regulating or revising the tariff. In some cases, this is provided for by fixing a major limit for *dividends* or *fares*, or *both*. This major limit, as respects the tariff, is sometimes an average maximum. In other cases the power of periodical revision, every three or five years, is reversed. When the major limit of dividends is exceeded, they may be divided with the State ; or, in other cases, be subjected to a tax. In some cases the dividends may not exceed a certain rate, after the lapse of a certain period from date of opening, varying from 10 to 15 per cent. after from four to ten or twelve years. Advantages in favour of the Post Office have also been reserved. The service is paid for, but not fully.

In all the Acts, a time within which the works must be completed, under pain of forfeiture, is fixed.

The States practically controlled the development of lines in the early days of Railway enterprise, by the inducements they granted. A few lines have been constructed and worked by States, but they have not proved successful, the managers having been elected for political reasons rather than for being specially qualified for the duty.

The great Pacific Railway, now being constructed from the State of Missouri for a distance of 2,400 miles across Kansas, Nebraska, Utah, and Nevada to San Francisco in California, receives subsidies of 3,300 *l.*, 6,600 *l.*, or 9,900 *l.*, according to the difficulty of the ground, besides enormous grants of land on each side of the line.

On the 1st January 1866 there were upwards of 35,000 miles of railway open throughout the United States, which had been constructed at a cost of 7,800 *l.* per mile. The lines have, in most cases, been very imperfectly constructed compared with English railways, and many of the lines have only a single line of metals ; but the development of these communications has been unparalleled. Fifteen thousand miles are stated to be under construction at the present time.

BELGIUM.—In Belgium the State initiated the original Railway system (about 350 miles), constructed the miles it projected, and works them. The debt incurred by the State for their construction will be paid off in 1884.

The reply of the Minister of Finance, M. Rogier, to those who in the outset advocated the course followed in England, of leaving the matter to competition, is worth quoting here :—

"No ; the state of affairs in which competition corrects the evils, does not apply here ; whoever holds the Railways holds a monopoly, and that should only be allowed to exist in the possession of the State, subject to the responsible advisers of the Crown."

Private Companies have since developed the main arterial system, devised, and carried out by the Government, on leases or concessions for a period of years. They have not been very successful, in fact, the State guarantees included, the net revenue was less than 4 per cent. in 1858. This result has been attributed to the circumstance that the main axial lines having been already constructed by the State, their further development by feeder lines of small extent was undertaken by a number of small companies. Propositions have accordingly been entertained for amalgamation in view to economy of working by means of centralisation.

The State not only at present works lines constructed by itself, but about 117 miles constructed by private companies, and has opened negotiations for the purchase of several of the private lines.

The following are the terms recently (1862) conceded to a company, the Belgian Eastern Junction :—

Guarantee for 50 years of a minimum annual interest on this basis (from date of opening ?)—

A.—So long as the annual gross receipts from the working do not exceed (say) 8 per cent. (15,000 *l.*) on a certain fixed capital (187,500 *l.*), the minimum interest is to be (say) 4 per cent. on that capital (7,500 *l.*)

B.—When there is any annual increase of receipts above 15,000 *l.*, there shall be a proportional reduction of the minimum, viz., of 10 per cent. of the amount of the increase, if this be less than 40 *l.*, of $10\frac{1}{8}$ per cent. if the amount be 40 *l.*, and does not exceed 80 *l.*, and so on, the rate of reduction of minimum being increased by one-eighth for every 40 *l.* of augmentation of receipts.

C.—The guarantee of minimum interest shall cease when the annual gross receipts exceed 29,000 *l.*

The terms accorded by the Belgian Government for the Tournay-Turbise and Landen-Hasselt

Hasselt lines are peculiar and may be quoted. These lines aggregate 47½ miles in length, and cost 10,638 *l.* per mile, including 4 per cent. interest paid during construction.

Term 99 years, concession redeemable by Government at the end of 45 years, upon payment of an annuity for the remainder of the term, equal to the net average income of the preceding five years, with 25 per cent. added. The lines are stocked, maintained, and worked by Government, which hands over monthly to the proprietors 50 per cent. of the gross receipts.

There were 1,350 miles of Railway in operation in 1865 throughout Belgium.

France.—The following extracts from Mr. Baxter's paper in the Journal of the Statistical Society "On Railway Extension and its Results," describes fully and clearly the various systems on which Railways have been carried out in France:—

"The success of the Manchester and Liverpool Railway provoked some, real though short, Railways in France, especially those from Paris to St. Germain and to Versailles. But in 1837, only 85 miles had been opened, against nearly 500 in England. In 1837 and 1838 the French Chambers threw out a scheme of their Government for the construction by the State of an extensive system of Railways, but granted concessions to private companies for lines to Rouen, Havre, Dieppe, Orleans, and Dunkerque. These lines were abandoned for a time, in 1839, from want of funds.

"In this emergency, Mr. Locke, the great English engineer, restored the fortunes of French Railways. Assisted by the London and South Western Company and Mr. Brassey, and with subventions from the French Government, and subscriptions from English shareholders, and a powerful corps of English navvies, he recommenced, carried through the line from Paris to Rouen, and from Rouen to Havre, and fairly gave the start to Railway enterprise in France.

"In 1842 a new law was passed, by which the State undertook the earthworks, masonry, and stations, and one-third of the price of land; the departments were bound to pay by instalments the remaining two-thirds of the land, and the companies had only to lay down rails, maintain the permanent way, and find and work the rolling stock. It was intended that three-fifths of the total cost should be borne by the State and departments, and two-fifths by the companies. Under this system of subventions a number of concessions were made, the shares rose to 50 per cent. premium, and in 1848 a total of 1,092 miles had been opened. The revolution of 1848 was a terrible shock to their credit, and shares went down to half their value. Many lines became bankrupt and were sequestrated, and for three years fresh concessions were entirely stopped. But the concessions already made were slowly completed, and, by the end of 1851, France had opened 2,124 miles, against 6,889 opened in the United Kingdom.

"In 1852 the Emperor took French Railways in hand, and by a system of great wisdom, singularly adapted to the French people, he put an end to the previously feeble management, and launched into a bold course of Railway development. The French public shrank from shares without a guarantee; he gave a State guarantee of 4 or 5 per cent. interest. The French public preferred debentures to shares; he authorised an enormous issue of debentures. The companies complained of the shortness of their concessions; he prolonged them to a uniform period of 99 years. At the same time he provided for the interests of the State by a rigid system of government regulation and audit. And lastly, coming to the conclusion that small companies were weak and useless, he amalgamated them into six great companies, each with a large and distinct territory, and able, by their magnitude, to inspire confidence in the public, and aid the Government in the construction of fresh Railways. This vigorous policy was very soon successful. Capital flowed in readily, construction proceeded with rapidity, and between the end of 1851 and 1857 the length of the railways opened was increased from 2,124 miles to 4,475, or more than doubled. England at that time had opened 9,037 miles.

"France was now exceedingly prosperous. Her exports and imports had increased from 102,000,000 *l.* in 1850 to 213,000,000 *l.* in 1857, or more than 100 per cent. in seven years. The six great companies were paying dividends which averaged 10 per cent., and the Government guarantee had never been needed. Railways united all the great towns and ports, and met the most pressing commercial wants. But the Emperor was not satisfied. France, with double the territory of England, had only half the Railway accommodation, and wide districts between all the trunk lines were totally unprovided with Railways. The Government engineers of the *ponts et chaussées* were prepared with plans and estimates for 5,000 miles of lines, which had been inquired into, and officially declared to be *d'utilité publique, i. e.*, a public necessity. The country districts clamoured for these lines. But how were they to be made? The public were not prepared to subscribe for them, the Government could not undertake them, and the great companies were too well satisfied with their 10 per cent. dividend to wish to endanger it by unremunerative branches.

"The plan of the Emperor was intricate, but masterly. He said to the companies, 'You must make these lines. The 4,525 miles of railway already made shall be a separate system for the present, under the name of *Ancien Reseau*, the old lines. You no longer require the guarantee of the States for these lines; but I will give you an extension of the 99 years of your concessions, by allowing them to commence at later dates, beginning with 1852 for the Northern Company, and at various dates for the rest, up to 1862, for the Southern Company. I also engage that 9,000,000 *l.* sterling of the net revenue of these old lines shall for ever be divisible among the shareholders, without being liable for any deficit of the extension lines, an amount which will give you a clear and undefeasible dividend of 6 to 8 per

per cent., with a strong probability—almost a certainty—of getting much more from surplus traffic.

" ' Next, the new lines, 5,128 miles in length, shall be a separate system, under the name of *Nouveau Reseau*, or extension lines. Their estimated cost is 124,000,000 *l.*, and you, the companies, may raise this sum by debentures, on which the Government will guarantee 4 per cent. interest, and ·65 sinking fund for paying them off in 50 years. Any extra cost you must pay yourselves.'

" These, in their briefest possible form, are the terms on which the Emperor imposed an average of nearly 1,000 miles per company on the six great companies of France. They were accepted with considerable reluctance. Their effect has been to lower the value of the shares of the great companies, for the bargain is considered disadvantageous. The companies cannot borrow at less than 5·75, so losing 1·10 per cent. per annum on every debenture; and as the lines cost more than the 124,000,000 *l.*, the overplus has been raised by the companies by debentures, for which they alone are responsible. But, on the other hand, they get an immense amount of fresh traffic over their old lines, which must ultimately more than repay this loss. English Railways would be thankful if their extensions cost them so little.

" In the following years other lines were added, with similar guarantees and with considerable subventions from the State, and in 1863 an additional series of lines, 1,974 miles in length, were imposed on similar terms, but with some modifications of the conventions with two of the weakest companies.

" Besides these Government lines, the Emperor encouraged to the utmost the efforts of the departments, and in July 1865 a law was passed respecting *chemins de fer d'intéret local*, which authorised departments and communes to undertake the construction of local railways at their own expense, or to aid concessionaires with subventions to the extent of one-fourth, one-third, or in some cases one-half the expense, not exceeding 240,000 *l.*

" Not content with passing this law, the Minister of Public Works in the very next month wrote to the préfets of the 88 departments of France to acquaint them fully with its provisions, and to invite them to communicate with their councils general, and deliberate upon the subject. The result was that 16 councils requested their préfets to make surveys and inquiries to ascertain what lines would be advisable. Thirty-two departments authorised their préfets to prepare special plans, and even to make provisional agreements with the companies to carry out lines, subject to confirmation by the councils. Two of these made immediate votes, viz., the department of Ain, 56,000 *l.*, and Herault, 260,000 *l.*, for lines which they approved. A third, the department of Calvados, voted subventions amounting to 1,000 *l.* per mile for one line, and 2,000 *l.* per mile for another line. Besides, these five departments put railroads into immediate execution by contracts with independent companies. Among these were—

	Subvention. £.
Saône et Loire	14,000
„ (besides the land)	40,000
Manche (with an English company, and including land)	40,000
Rhone	240,000
Tarn	171,000

" By these measures the Emperor has brought up the concessions to the following total :—

	Miles.
Ancien Reseau, or old lines	5,027
Nouveau „ or extension lines	7,565
	12,592
Being very nearly the length of our constructed lines in 1864.	
But of this mileage there has been constructed up to the present time only	8,134
Leaving still unconstructed	4,458

being one-third of the whole concessions. Of this, 1,800 miles are now being constructed, and 1,600 miles are expected to be opened by the end of 1867.

" Hence the lines constructed in France up to and including 1865, are 8,134 miles, or about the same length as the lines constructed in the United Kingdom to the end of 1855, so that France is 10 years behind England in actual length of Railways constructed, and at least 15 years behind England if her larger territory and population are taken into account; and I must add that France would have been very much farther behind had it not been for the vigorous impulse and the wise measures of the Emperor Napoleon.

" The progress of completion from 1837 to the present time is shown in the following table :—

Miles constructed.

Years.	Miles.	Average Annual Increase.
		Miles.
1837 - - - - - -	85	
		84
1840 - - - - - -	338	
		34
1845 - - - - - -	508	
		259
1850 - - - - - -	1,807	
		301
1855 - - - - - -	3,315	
		454
1860 - - - - - -	5,586	
		509
1865 - - - - - -	8,134	

"This table shows the insignificant rate of progress up to 1845, and the larger but still, slow progress up to 1855. From that time the effect of the Emperor's policy becomes visible in the increased rate of progression. It is expected that between 1852 and 1872 more than 9,500 miles will have been opened, quadrupling the number constructed in the previous 20 years, and contributing in the highest degree to the prosperity and wealth of the French nation.

"Railway history in France may be briefly summed up in four periods:—

1. The period of independent companies from 1831 to 1841.
2. The period of joint partnership of the State and the companies from 1842 to 1851.
3. The period of imperial amalgamations and guarantees from 1852 to 1857.
4. The period of guaranteed extension lines from 1858 to the present time.

* * * * * * * *

"Measured by area, France has only one-third of the Railway accommodation, and measured by population, only one half of the Railway accommodation of the United Kingdom.

"The capital authorised and expended to the 31st December 1865 was as follows:—

Capital Authorised.

	£.
Ancien Reseau, or old lines - - -	151,000,000
Nouveau ,, or extension lines - -	209,000,000
	£. 360,000,000

Including 64,000,000 *l.* subventions.

Capital Expended, 1865.

	£.
Debentures - - - - - -	178,700,000
Shares - - - - - - -	54,800,000
Subventions - - - - - -	27,500,000
	£. 261,000,000

"So that the French companies borrow more than three times the amount of their share capital; reversing the English rule of borrowing only one-third of the share capital. But if we consider preference capital as a second mortgage, the English practice is to borrow an amount equal to the ordinary share capital. This, however, is still a long way from the French regulations.

"The capital not paid up is nearly 100,000,000 *l.* Of this nearly one-half will be required in the next three years for lines approaching completion.

"The cost per mile of French railways is as follows*:—

	£.
Ancien Reseau - - - - - -	30,650
Nouveau ,, - - - - - -	27,350

As

* The average cost of the whole, including subventions, has been 32,000 *l.* per mile; excluding subventions, 28,800 *l.*

"As the *Nouveau Réseau* is almost entirely composed of single lines, this does not show very great cheapness of construction. We are making our country lines much cheaper, particularly in Ireland and Scotland."

* * * * * * * *

"Turning to the shareholders, there are some curious facts which surprised me not a little. The popular notion is, that in France railway traffic bears a much higher proportion to capital expended than in England. The phrase, 'They manage these things better in France,' is for ever on the lips of the British shareholder when he talks of his own paltry 4½ per cent. dividends, or of the 8½ per cent. gross receipts. The world in general believe that a 10 or 12 per cent. French line, like the Orleans of France, really has a traffic of at least that amount; but this is an entire mistake. The gross traffic receipts of France are now 9·6 per cent. on the share and debenture capital, or 1 per cent. more than in England; and the net receipts, after deduction of 45 per cent. working expenses, are now 5·8 per cent. on the total share and debenture capital, being 0·82, or about four-fifths, per cent. higher than in England: yet the French companies pay an average dividend of 10 per cent., while the English pay only the natural dividend of 4½. Here are the figures for the benefit of the sceptical:—

Average Receipts and Dividends per Cent.

Name of Company.	1859.	1861.	1865.
Gross receipts - - - -	10·5	11·0	9·6
Net profits - - - - -	5·7	6·2	5·28
Dividends of Great Companies—			
Nord - - - - -	15·	16·5	17·87
Orleans - - - - -	18·	20·	11·2
Midi - - - - - -	4·	10·	8·
Ouest - - - - -	7·5	8·5	7·5
Est - - - - - -	8·13	8·	6·6
Méditerrannée - - - -	10·6	15·	12·
Average - - -	10·54	13·	10·53

Compare these figures with those for the English lines given above, you will see the remarkable correspondence between the gross and net receipts, and the very remarkable dissimilarity in the dividends. How is this accounted for?

"Look at the table of capital expended. Disregarding the 27,500,000 *l.*, subventions, as corresponding to the *dixième* tax paid by the companies, there is 233,000,000 *l.* share and debenture capital, out of which a portion of the debentures are charged to capital under the conventions for the extension lines. Being for new Railways, they have not yet been transferred to the revenue account. Hence the interest-bearing capital reduced and the interest itself increased.

"The large amount of debentures now comes into play, on which there is paid from 5 to 5½ per cent., leaving an overplus to accumulate for the shares, so raising the interest on shares to nearly 7 per cent.

"But this is not enough. In 1863 the State bound itself to contribute to certain lines annual subventions, which, in 1865, came to 551,000 *l.*, and the State also paid during the same year in respect of their guarantees of the debentures in the *Nouveau Réseau* 1,320,000 *l.*, making a total subvention in 1865 of 1,871,000 *l.*, an amount sufficient to pay more than 3 per cent. on the share capital of 54,800,000 *l.* The guarantee of 1,320,000 *l.* on the *Nouveau Réseau*, however, is not an absolute subvention, as it will be repayable gradually by the companies when their income exceeds a fixed amount. It is therefore a loan by the State, repayable on the occurrence of a contingency and at an uncertain date.

"Thus the original interest of 5·28 per cent. on the share and debenture capital becomes 10 per cent. to the shareholder."

* * * * * * * *

"One characteristic of the French system is the absence of competition, and this is opposed to all our ideas of freedom of communication. The Northern Company monopolises the whole traffic between Calais and Paris. The Mediterranean Company monopolises the whole traffic between Paris and Marseilles, a traffic of extraordinary importance and value. An attempt made two years ago by another Company to obtain an extension to Marseilles, and to establish an alternative route, was rejected by a Government commission after a very long inquiry. The consequence of this system is a great concentration of traffic in a small number of trains, to the profit of the companies and to the inconvenience of the traveller.

There are in England, between places like Liverpool and London, about three times as many trains as there are in France between Marseilles and Paris; and besides this, goods are sent less rapidly in France, and delivered with less punctuality.

"But there is a great deal to be said in defence of the French system. It avoids the duplicate lines necessary for competition, which France could not well afford. It keeps the companies prosperous and able to aid the Government in Railway extension. It is not an irresponsible monopoly, able to charge high prices to its customers, but a strictly regulated monopoly, with its tariff fixed by Government at the lowest prices that will be remunerative. It is like the system of our own metropolitan gas and water Companies, which enjoy a monopoly within defined districts on terms settled by the law, and revised from time to time in the interest of the public. The French Government appoints commissioners of inquiry to examine into any defect, or to consider improvements, and they report to the Minister of Public Works, who has the power of making regulations which are binding on the companies. The last commission is a good instance. In February 1864 the Minister of Public Works issued to the companies a circular suggesting several points which required improvement, and the commission was appointed to consider their answers. The points discussed were—

"(1.) The adoption of a means of communication between the guard and engine-driver. This was made obligatory on the companies.

"(2.) A means of communication between passengers and the guard. This was accepted by the companies.

"(3.) The consumption by locomotives of their own smoke. This was ordered to be carried out within two years.

"(4.) The addition of second and third class carriages to express trains. The recommendation of the commission was accepted by the companies.

"(5.) Separate carriages for unprotected females.

"(6.) The commission demanded that on the great lines the speed of goods trains should be increased from 60 miles to 120 miles, without any increase of tariff. This very important question was referred to a sub-committee for further examination and for hearing objections.

"From these details it is evident that the interests of the public are well looked after.

"I should add that there is a continuous audit of the accounts of the companies by Government accountants, who attend from week to week at the companies' offices for that purpose.

"I will at present mention only one other point in French railway law, that the Government has the power of purchasing any line of railway after 15 years from its first concession. The price is to be fixed by taking the amount of the net profits of the seven preceding years, deducting the two lowest years, and striking the average of the remaining five years. The Government is then to pay to the company for the remainder of the concession an annual rent-charge or annuity equal to the average so determined, but not less than the profits of the last of the seven years. This mode of purchase appears preferable to the English law, since it does not require the creation of any new rentes or consols; and I commend it to the notice of Mr. Galt."

The State has secured for the nation the following advantages:—

(1.) Mail service free.

(2.) Participation in dividends beyond a certain limit on about two-fifths of the lines' the remainder being under guarantee.

(3.) Low tariff for soldiers, sailors, prisoners, paupers, &c.

(4.) Possession at end of concessions.

(5.) Power of purchase after 15 years from date of first concession.

In addition, the State levies a tax of 10 per cent. on passengers and first class goods.

The fourth advantage is obtained with justice to the share and bondholders and without inconveniencing the State, by extinguishing the capital within the period of the concession. This is done by cancelling by lottery a certain number of shares and bonds every year, which are paid off by a contribution out of revenue. The shares are paid off at par, and the holder receives a share "*de jouissance*," entitling him, for the remainder of the concession, to share in the surplus dividends on the undrawn shares.

The bonds are paid off with a bonus of from 25 to 40 per cent.

The following extract from "Ten Years of Imperialism in France: Impressions of a Flaneur," describes, in a popular manner, the process of the development of railway enterprise in France:—

"The first object to which this new method of Government assistance was applied was the Railway system. It was a legacy bequeathed to the Imperial Government by its predecessors. While in England and America the construction of railways was left altogether to private enterprise, and Parliament and Congress, following their old traditions, refused to give

give exceptional privileges and monopolies, Continental Governments took an opposite course. Everywhere it was laid down as the rule that to government must belong all initiative in the matter; nowhere was this principal carried so much to an extreme as in France. Not only did the government itself trace out the network of Railways which was to be constructed, but it adopted as a rule, that all Railways should be in the hands of the government, which should thus derive not merely a considerable source of revenue, but likewise a large patronage and the control over this rapid means of communication in times of political crisis. The only question was whether the Government should construct them altogether at its own expense, or whether, in consideration of the delay which would result from the impossibility of the Government making the large initial outlay rapidly enough, it would not be advisable to call to its aid private capitalists, allowing them to contribute a portion of the expenditure, and giving them in return short concessions for the working of the lines. Both views had their ardent supporters in the Chambers, and the end was an unsatisfactory compromise, which not only retarded, in many cases, the construction, but became the source of much waste in the outlay. The compromise was, that no general rule should be laid down, but that each case should be judged on its own merits. Thus some lines, like that from Paris to Lille, or the Chemin de Fer de la Bretagne, were constructed directly by the Government; while others, like the Chemin de Fer de l'Est, were constructed half by the Government and half by a company. In almost every such concession both the conditions and the terms of the concession varied. The law of 1842 became, however, the model for such concessions. According to this, the State paid for earthworks and for one-third of the ground; the departments and commonalties paid for another third of the ground, and only the rest of the outlay was at the charge of the companies, which were further assisted by loans from the government. In spite of these facilities the Railways did not prosper; most of the companies were only kept up with the greatest difficulty; and on one of the most important lines, that of Paris and Lyons, the Government had actually to take back the concession, and continue the works on its own account. It was a case of killing with kindness. Instead of being stimulated to exertion, the companies relied on the Government, and in most cases lost all power of expansion. Each company endeavoured to become the most favoured; little rivalries ensued, to the great disadvantage of the common interest. Private capital was unwilling to aid in an enterprise where Government authorities had so much power to interfere, and where there the term of concession was too short to allow sufficient time for the development of a large remunerative traffic. The result of all this was, that at the establishment of the Imperial régime, not more than 3,541 kilomètres, or 2,170 miles, of Railway dragged on a wretched existence. Invested, in 1852, with full powers of opening extraordinary credits for the construction of the large Railway network decreed in 1842, the Imperial Government gradually reversed the whole system which had been introduced by its predecessors. The practice of constructing and working Railways at the expense of the Government was from the outset condemned, and measures taken at once to form companies to take off the hands of the Government those lines which were its property. Although the idea of an ultimate reversion of all the principal railways to Government was not given up in theory, the uniform grant of a 99 years' lease to the companies, instead, as before, of half that time, or even less, was virtually giving them a right of proprietorship.

"All companies were reconstructed on this basis. Liberal terms were given both to the companies which took the Government lines, and to the old ones which were still under large obligations for outlays made by Government; but at the same time the condition was imposed, that they should greatly extend their respective lines. In order to facilitate this, every effort was made to effect a fusion of all the smaller lines into a few large ones, which should divide the whole territorry of France into so many regions. At present the number of these lines has been reduced to six, and they comprise all the railways, with the exception of about 60 miles, which are still in the hands of the smaller companies. Government subventions were not altogether stopped, but they were every year more reduced. From 30 and 40 per cent. of the outlay, their former proportion, they gradually sank to 20 per cent. and less, until, in 1857, when a large construction of branch railways (4,000 miles) was decreed, subventions were in most cases dropped, and a guarantee of 4·65 per cent. as interest and sinking fund, on a certain maximum of expense for 50 years, was adopted as the rule. If the revenues of the old lines exceeded a certain sum per mile, the surplus was to be applied as part of the guarantee stipulated by the Government for the new branch lines; if these latter should at any time yield more than the guarantee, the surplus was to be used to repay the sums expended by Government as guarantee; and, after 1872, all revenues of old and new lines beyond a fixed sum were to be shared with the Government. The system of direct subventions was only kept up in exceptional cases, where the Government was specially interested from military or other motives; but taking all this together, it is calculated that the proportion of expense borne by the Government in these branch lines amounts to no more than from 20,000 to 25,000 francs (800 *l.* to 1,000 *l.*) per kilomètre, or about 7 per cent. of the outlay, against 4,000 *l.* per kilomètre, or 30 per cent., which had been the average in the old lines. By these means a complete revolution has, within the last 10 years, been effected in the French railway system. They have changed their character as Government concerns, and have become private enterprises. The effect of this emancipation is plainly visible on the progress which railways have made since that time. From 3,541 kilomètres in 1851, they had risen in the beginning of this year (1862) to 10,098, or above 6,000 miles, and this result has been achieved at about one-half of the expense entailed on the Government by the former system. The whole

expense of the construction alone may be calculated at 4,008,042,000 of francs, or an average of 397,000 francs per kilomètre; out of this, about one-fourth was contributed by Government; but while it had spent above 600 millions for the original 3,541 kilomètres constructed till 1851, it had contributed about 350 millions only for the 6,557 constructed since that time. On the other hand, in spite of the heavy expenditure since 1852 (about 2,603 millions of francs, not counting the rolling stock), the companies have become proverbial for their prosperity, and excite the astonishment of Railway shareholders all over the world. The dividends vary between 7 and 15 per cent., and in some instances, as in the case of the Orleans Railway, have reached 20 per cent. It would be superfluous to speak of the reaction which this extension of very rapid and cheap means of transport had on commerce and industry; but it will scarcely be an exaggeration to assume that, both in point of time and of cost, a reduction of three-fourths has been effected" (pp. 107–111).

GERMANY: *Prussia.*—In Prussia Railways have been constructed with State aid in the shape of a subvention, or by taking shares, or guaranteeing a minimum *dividend.* The State reserves a power of redemption at the end of 30 years, on the condition of paying to the proprietors a capital equal to 25 times the average dividend of the preceding five years, assuming the responsibilities and debts of the company, but taking possession of the entire assets, as well as of the reserve fund. Meanwhile the State engages not to permit for 30 years parallel and competing lines to be constructed, and it has the power of controlling the tariff.

The mails are carried free, in vehicles provided at the expense of the companies.

During the three years commencing with the 1st of January, after the opening of a line, the Company has the sole privilege of conveying the traffic. Thereafter, others may be empowered by the State to use the line in consideration of the payment of the tariff or some other compensation.

The net returns or profits are taxed as follows, so as to reimburse the State the amount of its contribution and to redeem the share capital:—

When the net returns are less than	4	per cent.,	the tax is	1-40th	of their amount.
"	"	"	5	"	"	1-20th	"
"	"	"	6	"	"	1-10th	"
"	"	above	6	"	"	1-5th	"

Austria and Minor German States.—In Austria and the Minor German States Railways have been constructed both by government and with the aid of Government. In Austria, the concessions have been made for a term not exceeding 90 years from the date of opening. On the expiration of the term the lines will become the property of government, and it will be the duty of the latter to see that they are maintained efficiently during the last five years, so that they may be surrendered in good order. The rolling stock and all things connected with transport remain the property of the concessionaires. The tariff is subject to the approval of the Government, and is liable to revision triennially. When the net revenue exceeds 15 per cent. of the share capital, the Government can demand a reduction of the tariff. The interest guaranteed varies from 5 to 7 per cent., with, in some cases, 2-10ths per cent. as a sinking fund for the redemption of the capital.

The Austrian Government has sold the lines constructed by the State to private companies. In Prussia, on the other hand, the reverse has been the case, to some extent. Throughout Germany there were 8,866 miles of Railway in operation in 1861, of which 40 per cent. had been constructed by the different States, 25 per cent. by companies under guarantee or aided by subventions, and the remainder independent of all State aid; only one-fourth, about, of this system had two lines of rail. The statistical system in force on the German Railways is considered to be very perfect. All companies are required to give positive returns under specific heads of every detail of expenditure. This is said to lead to a wholesome competition in reducing expenses. In 1866 there were 12,324 miles in operation.

RUSSIA.—In Russia, the Railways are being constructed under a State guarantee of interest with land free, and rails and stock imported duty free. The rate of interest varies for different undertakings from 4 to 5 per cent. A sinking fund for the redemption of the shares at par within the term of the concessions is also guaranteed in some cases. The period of the concessions varies; in one case it is 75 years, in another 85 years. The above rates of interest are, however, in some cases nominal, the shares being issued below par, so that the actual interest is from 5 to 6 per cent. This nominal capital is thus exaggerated, and, the guarantee being applicable to it, any saving in the cost of the works enhances the value of the guarantee. Under these terms, one company at least is not required to account to the Imperial Government for its expenditure. The net receipts are applicable in relief of the guarantee, but in one other case, at least, the company is authorised, in priority, to set apart 10 per cent. of the net receipts, to the extent of 100,000 *l.* (1-26th of the nominal capital) to form a reserve fund against contingencies. Surplus profits are to be applied, half to the shareholders, half to reimburse the Government its advances on account of interest. After these shall have been fully reimbursed, the whole of the profits are to go to the shareholders. There were 1,862 miles of railway in operation in 1866 throughout Russia.

PORTUGAL.—

PORTUGAL.—" Railways* in Portugal are entirely under the control and protection of the Government. The method of granting concessions, as well as the general supervision exercised over the works during their construction, has been copied from the French system. * * * In Portugal, as in France, that ruinous competition which has been so injurious to railway property in this country is entirely prevented, inasmuch as the Government binds itself in each concession not to allow another line to be made in the same direction within a distance of 40 kilomètres, or about 25 miles. The enormous outlay of capital in Parliamentary contests, which has been another source of embarrassment to most of the principal English Railway Companies, is also avoided. On the other hand, the continual interference of the Government with the practical execution of the works is attended with many and grave disadvantages, and it may be apprehended that the working of the traffic will be similarly interfered with.

In the case of a project for a Railway originating with the Government, a programme or specification is issued by the Minister of the Interior, or Secretary of State for the Home Department, inviting proposals, up to a given period, from those who may be willing to tender for the concession. This programme contains—

" 1st.—An outline of what is required; such as the general direction the line is to take; what towns it is to accommodate; the amount of caution money, or deposit, and the periods at which it is to be paid, as a guarantee for the '*bona fides*' of the parties tendering; the length of time for which the concession is to be granted; the terms upon which the Government may, if so disposed, purchase the line; and the time within which the surveys are to be made, and the plans, sections, and drawings, descriptive of the line, are to be deposited by the party obtaining the provisional concession.

" 2nd.—The guarantees and concessions to be granted by the Government, including the right to receive the proceeds of the traffic, the amount of interest to be guaranteed on the capital, or of subsidy to be given by the State; the extent of district through which the line passes, which is to be secured from competition; the free grant of public lands, &c.

" 3rd.—The duties and obligations of the company, including the time at which the Railway is to be completed.

" 4th.—The particular stipulations relating to the works of the line, such as the scales to which the plans, sections, and drawings are to be prepared; the smallest radius of a curve and the steepest gradient which will be allowed; the dimensions of the road bridges; the weight of the rails; and a general specification of all the works, and of the plant which is to be provided.

" Upon this programme the competing parties base their tenders, and the Government grants a 'provisional concession' to the party whose offer appears to be the most advantageous. The plans, sections, and drawings have then to be prepared, together with estimates of the cost of the line, the statutes which are to regulate the undertaking, the tariff of charges, and all other particulars necessary for carrying out the enterprise.

" These documents are submitted to the Council of Public Works for examination and approval, and after all the matters of detail have been arranged, and have been approved by the minister, and the full amount of the caution-money has been deposited, the 'definitive concession' is granted.

" There is a slight difference in the mode of proceeding when a project originates with a private individual or a company, and not with the Government. In that case the party applying for the 'provisional concession' makes a tender to construct the line for a given sum, and upon given terms. This proposal is published, and the concession is put up to auction at the Ministry of Public Works. If more advantageous terms are offered, the projector has the option of taking it upon those terms; but should he refuse to do so, it is granted to the party making a more advantageous offer.

" Before operations are commenced, the Government appoints one or more fiscal Engineers to superintend the works during their construction. Copies of the working plans, sections, and drawings, in minute detail, have also to be submitted to the Council of Public Works for approval. A decree, called a 'portaria,' signed by the minister, is published in the Government Gazette, sanctioning or rejecting each design presented; and until the appearance of this document, the work, if commenced, is liable to be condemned by the fiscal Engineer.

" Up to the present time (1851) four concessions have been granted for a period of 99 years for Railways in Portugal, the terms of which vary considerably; but all have received either a guarantee of interest upon the capital or a subsidy, or other privileges, and have thus been directly encouraged and assisted by the Government.

" The first concession, which was for the Railway described in this paper, had a minimum interest, guaranteed by the State, of six per cent. per annum for 50 years, with an additional half per cent. to form a sinking fund; and on the completion of the line, a bonus of two per cent. on the capital was to have been paid to the concessionaires.

* * * * * * *

" The second concession was for a Railway south of the Tagus, from Bareiro to Vendas Novas and St. Ubes. It was given to a Portuguese company, with a subsidy of about 1,700 *l.*

* Extracted from a " Description of the Line and Works of the Railway from Lisbon to Santarem," by J. S. Valentine, M.I.C.E., Vol. XVIII., Minutes of Proceedings of Institution of Civil Engineers

1,700 *l.** per kilomètre, a free grant of all the timber required for the works, and of the Government lands over which it might pass.

"The third concession was for a line from Lisbon to Cintra, with the privilege of constructing docks at Lisbon. This was granted to a French company, without either a guarantee of interest or a subsidy; but a large quantity of land at Lisbon, which the company propose to reclaim from the Tagus, is ceded to it."

The fourth concession was for a railway from Lisbon to Oporto, but since the paper from which the above extract is taken was read, has been officially cancelled.

Railway progress in Portugal received a great impetus in 1859-60, and though the execution of the important line contemplated in the fourth concession above detailed, was delayed by its cancelment, M. de Salamanca obtained in September 1859 the concession of a system of 310 miles, including that line, on the following terms, and a section of 47 miles in length was opened for traffic within two years, the whole having been completed in 1865.

1st.—Term of concession 99 years.

2nd.—Tariff similar to those of the French Railways.

3rd.—Subvention granted by Government, 7,958 *l.* (average) per mile, varying according to the nature of the ground.

4th.—The land and works of art are provided for a double line, the earth-works for a single line, but those for the second line are to be commenced when the gross receipts amount to a certain sum, and completed when they amount to a somewhat higher sum.

Another system of about 300 miles has since been conceded with a subvention of 6,500 *l.* per mile.

There were in all about 419 miles of Railway open in Portugal in 1866.

SPAIN.—In Spain, the system under which Railways have been encouraged is somewhat similar to that obtained in Portugal, and already described. For a line conceded for 99 years in 1861, the Spanish Government have granted a subvention of 1,370 *l.* per mile, the cost per mile, including interest during construction, being estimated at 13,200 *l.*

The total length of Railway open in 1866 was 2,721 miles.

ITALY.—In Italy, Railways have been fostered by the different governments; on both the guarantee and subvention systems, supplemented by free grants of land.

In some cases a specific rate (4 or 4⅛) of interest has been guaranteed; in others a minimum net revenue, and in others a minimum gross revenue. The terms of the concessions vary up to 100 years.

There were about 2,389 miles of Railway opened throughout Italy in 1866.

HOLLAND.—In Holland, the State has also followed both systems, granting subventions towards construction, and a guarantee of interest with a sinking fund. In one case it was proposed to guarantee the minimum interest for 50 years out of the term (99 years) of the concession, and to apply surplus profits, firstly, towards the repayment of advances of interest, thereafter 10 per cent. of the surplus was to be given in bonuses to the employés, and of the balance, one quarter was to be appropriated to reimburse the State the amount of its subsidy, one quarter to the redemption of shares, and the remaining half to be distributed to the shareholders.

There were about 372 miles of railway open in 1866.

DENMARK.—In Denmark, a royal concession of a system of Railways was made to Messrs. Peto and others, in perpetuity, with a guarantee against competition for 100 years. On another line, the Government has guaranteed a minimum dividend of 4 per cent. for 90 years, reserving the right of purchasing the share capital at par after 25 years.

The length open in 1866 appears to have been about 470 miles.

SWEDEN AND NORWAY.—In Sweden and Norway, the guarantee system has been adopted, as also that of construction by the State. In one case it would seem that the public had found one-half of the capital, and the Norwegian Government the other half, and also had agreed that the net profits should be applied to pay, first, 5 per cent. on the shareholders' capital; second, 4 per cent. on its own advance; surplus profits being divided equally, and the Government having the option of taking possession of the line at the end of the term (100 years) of the concession on payment of shareholders' capital.

There would appear to have been about 800 miles of Railway open in 1866.

TURKEY.—In Turkey, the Government has adopted the guarantee system. The Varna Company has a concession for 99 years, with a guarantee of minimum interest of 5 per cent., and of a sinking fund; holders of redeemed shares sharing in surplus profits throughout the remaining term of the concession. The Ottoman Company has obtained a perpetual concession, subject to the right of purchase by the Government upon agreed and equitable terms, at the end of 50, 75, 95, and every subsequent 20 years, with a guaranteed minimum dividend of 6 per cent. for 50 years on a fixed capital. Profits over 7 per cent. are to be divided with Government; unrestricted power of management; guarantee against competition; government land and materials free; no import duties.

There were 81 miles open in 1866.

ALGERIA.—

* Say 2,735 *l.* per English mile.

Algeria.—In Algeria, there are 31 miles of open railway, part of a system of 116 miles revised in 1859, and then estimated to cost 64 millions of francs, of which the State agreed to contribute six millions as a subvention, guaranteeing on the remainder of the capital a yearly interest of 5 per cent. for 99 years.

The length of the system as now projected, is 339 miles.

Cape of Good Hope.—The Government of the Cape Colony has also adopted the system of guaranteeing a minimum rate of interest (6 per cent.) on a fixed capital. There were 63 miles of railway in operation in 1865.

Central and South America.—In Central and South America, the various Governments have encouraged railways by concessions generally in perpetuity, sometimes for 99 years, with a guarantee of interest (generally 7 per cent., sometimes higher) for periods varying from 20 to 90 years on a fixed capital. In Brazil, the guarantee is shared by the Provincial and Imperial Legislatures. Land free, materials from Europe free of duty, with protection from competition, and the right to work minerals within a certain distance of the line, are amongst the terms conceded in different cases. There is the usual provision for reimbursing the State advances of interest out of surplus profits, but the limit beyond which a surplus is declarable, is in cases fixed higher than the guaranteed minimum.

There were about 550 miles of railway open in 1865.

Canada and Australia.—As to the terms on which railways have been constructed in the British Possessions of North America and Australia, information has not been obtained. In the former provinces, a grant of land appears to have been made in one case with a guarantee of a minimum rate of interest on a certain part of the capital, and there were about 2,500 miles in operation in 1865.

In Australia, the Government possesses at least one of the lines (having purchased it), and another line has been assisted with a grant of land. In 1857, there were 45 miles in operation.

It should be prominently stated that in almost every case, if not in all cases, the guarantee by foreign governments of interest or dividend commences from the date of opening the line or a section of it, and not from the date of subscription of the capital.

The information herein contained has been collected from various sources, and may not be correct in every particular, while it is obviously deficient in many respects.

The following Table, compiled from Mr. Baxter's Paper in the Statistical Society's Journal, exhibits the correspondence between the trade of a country and the improvement of its internal communications :—

YEAR.	United Kingdom.		United States.		France.		Belgium.	
	Navigations (4,000) and Railways.	Exports and Imports per Mile.	Navigations (6,000) and Railways.	Exports and Imports per Mile.	Navigations (7,700) and Railways.	Exports and Imports per Mile.	Navigations (910) and Railways.	Exports and Imports per Mile.
	Miles.	£.	*Miles.*	£.	*Miles.*	£.	*Miles.*	£.
1830 - - -	–	–	6,040	5,130	–	–	–	–
1833 - - -	4,000	21,375	–	–	–	–	–	–
1839 - - -	–	–	–	–	–	–	1,055	14,862
1840 - - -	5,200	22,884	–	–	8,264	9,985	-	–
1844 - - -	–	–	10,310	4,437	–	–	–	–
1845 - - -	6,441	20,959	–	–	8,547	11,358	1,205	22,340
1850 - - -	10,733	16,006	13,475	5,102	9,507	10,750	–	–
1853 - - -	–	–	–	–	–	–	1,590	30,037
1855 - - -	12,334	21,098	23,398	4,778	11,015	15,712	–	–
1860 - - -	14,433	25,985	34,770	4,567	13,286	17,476	1,907	37,818
1864 - - -	–	–	–	–	–	–	2,220	42,919
1865 - - -	17,289	28,341	–	–	15,830	18,518	–	–

APPENDIX TO SECTION VIII.

"XI.—*Railways and National Debts.*

"In one important point the nations of Latin race have stolen a clear march upon the nations of Teutonic origin, of England, Germany, and the United States, by their appreciation and adoption for Railways of the principle of a sinking fund. The idea owes its origin to the semi-Latin, semi-Teutonic intellect of Belgium. When the Belgian Government in 1834 projected a system of State Railways, to be constructed with money borrowed by the State, they provided for the extinction of the loans in 50 years by an annual sinking fund. The amount borrowed was nearly 8,000,000 *l.* sterling, and the whole will be paid off in 1884, after which date the whole profits of the State lines, 352 miles in length, will become part of the revenue of the nation. But so good an investment are these lines, that their present net income is 525,000 *l.* a-year, and is increasing at a rate which promises in 1884 a net revenue of 960,000 *l.*, a sum which will be sufficient to pay the interest on the whole national debt, now 26,000,000 *l.* Besides this, the conceded lines, 1,000 miles in length, will be amortised and become State property in 90 years from the beginning of their concessions, and the profits on a capital of more than 13,000,000 *l.* will then be available towards the State revenue.

"This system was copied by France, and imitated from her by the other Latin nations, Spain, Portugal, and Italy, as well as by the non-Latin States of Austria and Holland. All these countries, at the end of various terms of 99, 90, and 85 years, will practically pay off a large portion of their national debt. Improvident Spain will pay off about 40,000,000 *l.* out of her debt of 164,000,000 *l.* Heavily burdened Austria will practically abrogate something like 65,000,000 *l.* out of her debt of 250,000,000 *l.* Italy will wipe out a large portion of her debt of 176,000,000 *l.*

"But the most remarkable example is France; and I will endeavour to explain as briefly as possible the working of the French system. In France the Railways are conceded for 99 years, but it is one of the conditions of the grant that all the capital, whether in shares or debentures, shall be paid off within that term by an annual *amortissement*, or sinking fund. The small amount of this annual payment is very extraordinary. The French rate of interest is 5 per cent., and the annual sinking fund necessary to pay off 100 francs in 99 years is as nearly as possible ·04. Put into the English form, for the sake of clearness, this means that the annual sinking fund necessary at 5 per cent. to redeem 100 *l.* in 99 years is only 1 *s.* per annum. As debentures are issued in France for less than 99 years when part of the concession is run out, the amount of the sinking fund varies, but it is usually said to amount on the average to one-eighth per cent. As the whole expended capital of French Railways, represented by shares and debentures, is 233,000,000 *l.*, it follows that the total annual sinking fund paid by the French companies for the redemption of that sum is less than 300,000 *l.* The result is marvellous, that for 300,000 *l.* the French nation will acquire, in less than 99 years, an unencumbered property of 233,000,000 *l.* sterling. But this is not all. The Railways represented by that 233,000,000 *l.* sterling produced in 1865 a net revenue of about 12,500,000 *l.* Before 1872 further Railways will have been completed, which will be amortised at the same date as their parent lines, and will produce before many years a net income of 4,000,000 *l.*, making a total net income of the French Railways 16,500,000 *l.* But the total charge of the French national debt in 1865 was only 16,000,000 *l.* So that France has now a system in operation which, in less than 90 years from the present time, will relieve the country from the whole burden of her national debt of nearly 500,000,000 *l.*

"Is it allowable in me to ask, why are we doing nothing of the sort? When so many other nations are paying off by means of their Railways a portion, or the whole of their national debts, why are we, with all our wealth and resources, to do nothing? A scheme of amortisation suited to the habits of the English people, is perfectly possible, and the peculiar position of Railway Companies at the present moment renders it easy to carry out. I will say nothing about debentures, because a plan is now before the Government dealing with them. But, I say, respecting Share Capital, that it would be perfectly practicable for the State to become the possessor of a large proportion of this stock in a comparatively short time, and at no great expense. An annual sinking fund of 5 *s.* per cent. will pay off 100 *l.* in 72 years, reckoning only 4 per cent. interest. Hence, in 72 years, an annual sinking fund of 500,000 *l.* a-year, will pay off 200,000,000 *l.* The Government duty on Railways amounts to 450,000 *l.* a-year, and will soon reach 500,000 *l.* My proposal will be to make this a sinking fund towards purchasing 200,000,000 *l.* of preference and other stock, and let it be invested annually by the Board of Trade, or by commissioners appointed for the purpose, like those appointed for the National Debt. Instead of cancelling each share as it is purchased, let it be held in trust for the nation, and the dividends applied every year in augmentation of the sinking fund. In this manner, at the end of about 72 years, 200,000,000 *l.* of preference and ordinary share capital would become the property of the nation, and its dividends become applicable to the interest of the national debt. As Railway dividends average 4 to 4½ per cent., the dividends on the redeemed capital would pay the interest on more than 250,000,000 *l.* consols, and be equivalent to the redemption of that amount of our national debt.

"I believe that this is a practical scheme. In a slightly different form it is now being carried out in France, Belgium, and other Continental States. I trust that before

before long we shall cease to be almost the only nation in Europe which does not act on the principle 'that Railways are the true sinking fund for the payment of the national debt.'

"The advantages of such a sinking fund over a sinking fund invested in consols are threefold:—

(1.) It would be invested annually in Railway capital at a higher interest and thus accumulate more rapidly.

(2.) It would have a different primary object, viz., the purchase of a State interest in Railways, and would, therefore, be more likely to enlist popular feeling in favour of its maintenance.

(3.) It would be distinct and separate from the national debt, and not under the same control, and would, therefore, be less liable to be diverted to the financial necessities of the hour.

"Perhaps it will be said that a Railway sinking fund is unsuited to the character and habits of the English people. But surely it is our character to be prudent and to pay off encumbrances; and to adopt the best means of accomplishing that object. Surely it is not right in a great and wealthy and enlightened nation like England to incur the reproach of being spendthrift of her resources and reckless of her debts." (*Extracted from Mr. Baxter's paper "On Railway Extension and its Results," in the Journal of the Statistical Society for December* 1866.)

Note by Colonel C. H. Dickens, R.A., Secretary to Government of India, Public Works Department, on terms of Railway Contracts; dated 10th July 1867.

The first point to be noticed is the omission mentioned both by Colonel Strachey and Colonel Hodgson of one of the principal lines which the Indian Branch Railway Company was to have undertaken, that from near Allygurh to Moradabad. The Secretary of State should certainly be told that this line is as much wanted as ever, and should be one of the first to be set in hand.

The omission of the junction with the Delhi Line near Saharunpoor is also to be noticed.

The main changes adopted in the new form of Contract are—

1. A provision for estimates being framed for the cost of the works (new Clause 1).

2. Rate of exchange 2*s.*, instead of 1*s.* 10*d.* (new Clauses 6, 7, and 17).

3. Grant of land in perpetuity instead of for 99 years; and abolition of ultimate right of property to the Government after 99 years, which, however, was not workable (old Clauses 9 and 21 struck out, and omissions in Clauses 15, 16, and 20 of new Contract).

4. The Company to fix fares and rates within maximum rates, and omission of provision to reduce fares if profits exceed 10 per cent. (new Clause 8).

5. Interest allowed on Revenue deposits. This has been sanctioned before, but is only now inserted in the Contracts (Clause 14).

6. Government may now purchase at any decennial period after 20 years, instead of only after 25 and 50 years (Clause 20).

7. Guarantee of interest absolute on *all* expenditure, instead of only on approved expenditure (Clause 24).

8. Company to be subject to the Acts of the Indian Legislature (Clause 27).

The alterations are marked in red ink in the new Draft. A copy of the old form of Contract is also put up.

To come now to the general question of the terms of Contract, I think it will be quite necessary for the Government of India to give a full opinion upon so very important a subject. I think it *ought not* to be assumed that the Secretary of State desired to have it settled without reference to the Government of India, even though he certainly does not ask for an opinion.

There is, I think, now no doubt of the accuracy of the opinion which has been gradually growing up both here and in England, but which was first formally stated in Sir William Mansfield's Minute, that it will not be possible to raise Capital for, nor to proceed with, the extension of Indian Railways otherwise than with a continuation of the system of Government guarantees.

In this I leave out the question of the Government undertaking Railways itself. No doubt this could be done, and possibly it might have been done, with advantage. But the Secretary of State seems to have settled that the system of employing private Companies shall at least be so far followed. While he has as yet given no decided orders as to the not employing of private Companies on works of irrigation, it seems to be out of place to press the subject of the construction of Railways entirely by the Government Engineers. I confine

this note, therefore, to the case of private Companies constructing Railways under guarantee.

The main objections to the guarantee system were that the Government control thereby rendered necessary was vexatious; and that the fact of the guarantee being given, removed from the Company the main motive for economy, while the Government control could not supply its place. These objections, and especially the latter, led to certain contrivances being devised by which the terms to be given to Railway Companies by the Government were to induce them to be economical with their constructive operations and working. The principal of these devices are the following:—

I. Guarantee of interest on the *estimated* cost of the line, instead of on the actual expenditure.

II. A subsidy per mile open, instead of a guarantee of interest.

III. A guarantee of gross earnings per mile open.

All these, and probably every other contrivance that could be made, are open to the objection that, while they certainly throw the responsibility for economy on the Company, they throw risk on the shareholders. The object of these latter to find a safe and profitable investment is defeated by any system that throws responsibility on them; and they will not advance their money on any such terms.

On the other hand, we have the strong evidence of Mr. Crawford that the Government control is no longer objected to at Home. And it has been truly remarked that, with every year's experience now we find less and less difficulty in working the Government control. Our recent experience is, I think, rather in favour of strengthening than of relaxing the Government control. I do not mean interfering more minutely, but interfering, *when necessary*, with more certainty of effect. The main objection that I see to the revised Draft Contract now sent out by the Secretary of State is, that it somewhat weakens the Government control.

I think it very desirable that the Government of India should notice this point strongly, because the natural tendency of the India Office is to treat the Railway questions as a matter of finance and encouragement of English enterprise, and to leave the arrangements as far as possible in the hands of the Companies, to the neglect of the claims of the people and of the Government of India, whose interests being remote from view, and not daily pressed upon the officials as those of Companies and shareholders are, are apt to lose their just claims for consideration.

Now, the power of Government to control under the old contract rested on two penalties for non-compliance with its orders. There was, *first*, the minor penalty, which might be exercised under Clauses 12 and 27, of rejecting ultimately from the guarantee of interest any items of expenditure which have not received the sanction of Government; and, *secondly*, there was the main penalty under Clause 24, of taking possession if the Railway be not worked according to the Contract, or to the satisfaction of Government. Now, in the new Draft Contract, while the main penalty remains as before, the minor penalty is totally abolished in the alteration of the old Clause 27, which is replaced by the Clause 24 of the new Contract.

It is quite true, as Colonel Strachey has remarked, that this minor penalty has never in any one case been enforced. It is also, I think, fully to be admitted that it is not a desirable penalty to retain, since its tendency is, so far as it goes, to render the guarantee uncertain and dependent upon the obedience of the Company's Officers to the orders of Government. But still the old Contract gave no other minor penalty. The fact that the acts of the Company's Officers *were liable* to have this very disagreeable effect upon the affairs of their employers, could not be without its effect. And I think it is very objectionable to abolish this provision, unless there be some other easily worked penalty substituted for it. It is, I think, clearly not desirable to depend for the control entirely on the possibility of being driven to the extreme measure of taking over the entire property from the Company.

The only kind of penalty which occurs to me as being free from grave objections, is that of dismissing, or at least suspending from office and salary, the Agent of the Company, and appointing another person in his room. This appears to have been originally suggested by Mr. Laing (*see* page 19 of Captain Williams' Note). It is included in Colonel Strachey's Draft, Clauses XXXIX. and XL.,* but has not been adopted at the India Office (*see* also page 55 of Captain Williams' Note). Colonel Hodgson is disposed to object, and thinks that a respectable Agent would not submit to such a provision. But I think a moderate increase of salary would obviate any such objections. This sort of penalty has the great advantage of being promptly applicable, while it does not at all interfere with the pockets of the shareholders. I would recommend this strongly to the Secretary of State; even if unsuccessful the representation will do good.

* Extending them also to the traffic manager and chief engineer.

The provision might be made by an addition to the 9th Clause of the new Contract, or in a separate Clause to be placed after it.

I would even make the guarantee a guarantee of *dividend* instead of a guarantee of *interest only*, if necessary to secure these powers to the Government. Practically, the Government does guarantee dividend, since in the only cases where working expenses have exceeded receipts, the balance has been allowed to go to the accumulated interest debt which may never be repaid.

The next point I have to bring to notice is one which his Excellency the Governor General

General directed me to consider. It is, whether the entire profits above 5 per cent. should not go to repay the guaranteed interest to Government, instead of the moiety only; and whether it should not be provided that any Railway paying up to, or more than 5 per cent. for two, three, or five years, should thereafter be debarred from again claiming interest under the guarantee, if its profits should afterwards fall below 5 per cent.

It seems to me that neither of these alterations should be made. The second would have clearly the effect of weakening the security of the guarantee to the shareholders, which is above all things to be avoided; and the first would do away with the inducement to the Company to secure profits and work economically, since it could not, for an indefinite time, obtain any advantage out of what it made beyond the 5 per cent.

But it seems to me that it would be well to make a change in this part of the Contract (Clause 17 of Secretary of State's Draft) in favour of the Government. That change is simply to give the Government half the profits over 5 per cent. for all time to come. It would greatly simplify the Contract; and it would, I think, not be unacceptable to the shareholders that the Government should have a common interest with them in the affair, since it would afford some sort of security that the Government would never exercise its control to the financial disadvantage of the Company in the long run.

This provision, moreover, would be a fair set-off against the abolition of the limit of the grants of land, &c., to 99 years.

I would next ask the Secretary of State to make some change in the wording of the part of Clause 8 which refers to maximum fares and rates. Colonel Hodgson very truly remarks that, unless the classification of fares and rates is provided for, this Clause will give the Company an undue degree of power. It is certainly implied in Clause 18 that there shall be more than one class of passengers and goods; but beyond this there is nothing in the Contract to prevent the Company from fixing the fares so as to confine greatly the use of the Railway. I would word the part of the Clause I refer to something in this way:—"And the Company will allow the use of the said Railway and telegraphs connected therewith to the public on such terms as shall be approved by the Secretary of State in Council, and shall classify the passengers and goods according to such classification as shall be approved by the Secretary of State in Council, but the Company shall be empowered to charge such fares for the carriage of passengers and goods of the several classes, and such tolls for the use of the said Railway and telegraphs, as they shall think fit, provided such fares and tolls respectively shall never exceed a maximum rate for each kind or class to be fixed from time to time for the same respectively."

It will be perceived that this alteration will involve the power of the Government to order "parliamentary trains." It may be said that this might be left to be ordered by the Legislature under Clause 27, but it is better, I think, to have all the principal demands of the Government in the Contract, and the power to give cheap trains to the people should certainly be one.

I quite agree with Colonel Strachey as to the advantages of the new Clause about estimates, and in the necessity for urging the Secretary of State to lay down some mode of procedure in regard to it, to be adopted at the India Office. The danger is that, owing to some pressure from capitalists in certain states of the money market, agreements may be so unduly hastened as to make the Clause a dead letter.

I also agree with Colonel Strachey in thinking that there is no great harm in giving up the 99 years' limit, and that the new purchase Clause, and that relating to the legislation on Railway matters, are improvements.

This latter Clause (No. 27) on legislation, is one which is, perhaps, intended to be of greater importance than would appear at first sight. The corresponding Clause (30) of the old Contract provided that such legislation as was *required* by the Company would be provided by the Government. It may have been held to imply that the Government would *not* subject the Railway Company to legislation, except such as might be in accordance with the terms of the Contract. The new Clause puts an end to any such implication, and *may* be intended to arm the Government with such powers as are necessary in dealing with want of care for the safety and comfort of Native travellers, and such like matters. It may, indeed, be intended to render unnecessary any such power of control as I have proposed to recommend, in providing that the Government may dismiss or suspend the Agent. But I hardly think it is desirable to leave so important a matter to the obscurity of this short addition to the Clause. I have remarked before that it is desirable that the Contract should contain all the principal demands of the Government. I will also say that I think, in this country, the Government requires more authority over the Railways than a control by Acts of the Legislature, involving suits in the Courts, in order to obtain power of coercion. It requires a certain degree of *executive* authority quite irrespective of its financial relations with the Companies.

I have now gone over all the important alterations in the Contract. There remain two or three minor points which may be noticed.

One of these is the omission to provide for the haulage of sorting carriages for the Post Office in Clause 18.

Another is, that it will be well to make it clear under Clause 8 that the Government may order special trains.

The words inserted in Clause 21 at the foot of page 14 should be corrected.

It will be well to communicate the Secretary of State's Despatch, and the reply made thereto, to Local Governments for information, and to invite their opinions.

10 July 1867. *C. H. Dickens.*

Minute by His Excellency the Governor General, dated 16th August 1867.

Contract with Indian Branch Railway Company for Railways in *Oudh* and *Rohilkhund*. —General Terms of Contracts granting guarantees of Interest to Railway Companies.

The Secretary of State in his Despatch, No. 18, of the 23rd March last, informs the Government of India that an offer had been made to the Indian Branch Railway Company of a guarantee of interest on the capital required for a portion of the projected Oudh and Rohilkhund Railways. This communication is of much importance in several respects. First, it finally settles the questions which have for some years been under discussion as regards the exact terms to be conceded to this Company. Next, it virtually adopts the conclusion that the attempts which have been made by the Government, both at Home and in this country, to induce capitalists to undertake Railways without a guarantee of interest have failed, and that henceforth the system of giving a guarantee for approved lines of Railway will be resumed. Lastly, it communicates to the Government of India a new form of Contract, differing in some important points from the old one, which the Secretary of State proposes to adopt in future in dealing with Railway Companies carrying out works under a guarantee of interest.

2. As to the first of these points, the special arrangements made with the Indian Branch Railway Company, it is necessary to remark that a portion only of the lines originally projected, and approved both by the Government of India and the Secretary of State, are now mentioned as agreed to be executed. The particular line, a desire for the construction of which originated the negotiations with this Company, is excluded for those to be constructed. It is the line connecting Rohilkhund with the East Indian Railway at Allyghur, and thus with Agra and Delhi—the chief marts to which the produce of Rohilkhund is exported. The great importance to Rohilkhund, which is one of the chief rice and sugar-growing districts of Upper India, of retaining a fair chance of disposing of its produce in the markets of Rajpootana, has always been strongly pressed on the Government of India by the Government of the North-Western Provinces. Unbroken Railway communication already exists between Agra and Delhi, and the greater part of the Doab and Bengal, and will shortly be established with the Punjab. The farmers of Rohilkhund, whose produce is now only able to arrive at Agra and Delhi, after having had to bear the heavy relative cost of transport by common roads, are thus placed in a far more disadvantageous position than before. Nor will they receive any sufficient compensation by the opening of Railway Communication between Rohilkhund and Oudh, because Oudh and the districts to the eastward about Benares are themselves sugar-growing countries, and the rice of Bengal will, by help of the railway, arrive in Oudh on almost as favourable terms as that of Rohilkhund. In short, Rajpootana seems likely to continue to be the chief market of Rohilkhund. Again, the return trade from Rajpootana to Rohilkhund is in a great part in salt—an article the price of which it is of much importance to reduce both in the interest of the consumers, and of the Government excise duty. This affords another strong reason in favour of giving the cheapest possible means of transport by this route.

3. These arguments are well known to all persons connected with the administration of Rohilkhund, and were long and earnestly pressed on the Government of India by the Government of the North-Western Provinces. Their force was universally acknowledged, and the Government of India and Secretary of State agreed that a Railway into Rohilkhund was one of the first that should be undertaken, when a suitable arrangement could be entered into for its execution. The Secretary of State even went so far as to direct the Government of India to carry out the line under Government agency,* and this would undoubtedly have been actually done if the Indian Branch Railway Company had not come forward with an offer which seemed likely to lead to an early execution of the work. It is certain that the Government of the North-Western Provinces will feel greatly disappointed at any change of opinion which shall, at the last moment, and without any assigned motive, set aside a conclusion so long understood to have been finally adopted, and so thoroughly founded on careful consideration and discussion.

* Secretary of State, No. 11, dated 25th February 1862.

4. It is also proper to remember that the relations between the Government and the Company formed to work the iron-ores of the Kumaon Bhabur, afford another argument in favour of the early construction of this cross line of railway. This Company purchased the Government Iron Works below Nynee Tal in the full knowledge, if not under the direct assurance of competent authorities, that the Government had determined to construct a Railway from the vicinity of the Iron Works to join the East Indian Line in the Doab. The Company were at a later period informed that this was the intention of the Government, under direct orders of the Government of India.† Whatever chance this Company has of carrying out its enterprise with success, obviously depends on its obtaining the means of sending its iron to market at cheap rates, which can only be done by aid of Railway transport. The importance of introducing iron manufactures in Upper India on a self-supporting basis is beyond dispute, and after the assurance held out to the Company that a Railway connection with their works would be made in a certain definite manner, it seems the

† Department of Public Works, No. 5142, dated 29th December 1862, to Government of North-Western Provinces.

the very least that can be done to give effect to this virtual pledge. If the direct connection between Rohilkhund and the East Indian Railway is not made, the Company will be cut off from the most important probable markets for its iron, namely, the districts of Northern India most remote from the sea, or it will only have access to them by a long detour, which will be attended with much additional expense and consequent loss of profit.

5. Under all these circumstances, I trust that, on a further consideration of the subject, the Secretary of State will extend the arrangement with the Indian Branch Railway Company so as to make it embrace the construction of this line.

6. Another portion of the first scheme for these Railways which has been omitted, is the connection between Rohilkhund and the Punjab Company's line near Saharunpoor. It is not apparent on what ground this alteration has been made; but it seems as though the decision before come to as to the general direction and extent of the Rohilkhund lines, after very full and careful discussion and consideration,* had been set aside in a manner disadvantageous to all parties. It is possible that the intention is to leave this junction open for future arrangement; but so far as all the real interests of the country traversed are concerned, there seems far less reason for dropping this part of the projected system of railways than many others.

7. The second main point raised by this Despatch is the virtual abandonment by the Secretary of State of the attempt to accomplish the construction of Railways in India without a guarantee of interest. This result, no doubt, is one for which every one must have been prepared. It has long been known that capital could not be obtained in India to any useful extent, and now it has become manifest that it cannot be raised in England for such purposes as these without the security of a guaranteed return of income. The Government adopted a very proper and natural course when it endeavoured to induce capitalists to come forward to undertake Railways in India without this description of assistance from the State, and the failure to accomplish this end is much to be regretted. But such a result having been conclusively established, the Government should, I think, now review its position in relation to this very important and very costly class of Public Works.

8. So long as it was hoped that Companies might come forward to undertake Railways in India under such terms as had before been proposed, that is, with the aid of a moderate fixed payment for a term of years, it did not seem important for the Government to take any special steps in the direction of attempting to settle beforehand what lines should be taken up. It was reasonable to wait until some body of capitalists voluntarily proposed to accept the risk of carrying out any selected line of Railway. It did not appear likely that the payment of the subsidy which had been approved by the Secretary of State would lead to any serious burden being put on the finances, or that any great or sudden change would be occasioned in such a manner. In truth, the subsidy has not been taken advantage of at all, excepting by the Indian Branch Company, and then it entirely failed to induce capitalists to provide money, and has, as we now know, been finally given up.

9. But the position in relation to Railway construction will be entirely changed now that the system of guarantee has been again adopted, and that it has been practically admitted that the Government must for the future give assistance in this form to ensure the construction of Railways in India. There can be no doubt that, under a guarantee of interest, the Government may without difficulty at once secure the formation of a Company to carry out any line of Railway which it desires to see executed. This being the case, there is no reason whatever why the Government should henceforth be influenced by anything but its own conclusions as to what is desirable in relation to Railway construction. The entire position is in the hands of the Government, and it seems to me most unadvisable to allow the advantages which it presents to be lost. It is very certain that the knowledge that the Government has re-opened the system of guarantee will bring up many speculative projectors, who will take up schemes for which they will without difficulty obtain the support of colourable authority at least. Such schemes they will press on the Government under such patronage as they may secure, and unless preparation is made beforehand to meet such projectors and their schemes, it is exceedingly probable that the Government may find itself involved in undertakings which have been forced upon it in a way which it may see cause to regret hereafter.

10. Having regard to the necessary limit to the sum that will from year to year be available from the Indian revenues for the purpose of paying guaranteed interest, and also to the like limit which there will be to obtaining capital from the English Money market, it is certain that any extension of Railways in India must be practically restricted to a limited number of miles in any one year. It will, therefore, follow that every pledge of the Government to assist any particular project will, *pro tanto*, prevent the prosecution of all other projects, at all events for a time. Hence it is obviously important for the Government to do what is in its power to make a selection of those lines which shall be first constructed, and so far as it can to regulate the order and manner in which all future extensions of Railways shall take place.

11. Although

* Government of India to Secretary of State, No. 59, dated 2nd August 1864. *Public Works Proceedings*, June, Nos. 50 to 72, 1864.

* Minutes, 8th October and 18th December 1866.

11. Although I have already on other occasions* expressed my opinion that any considerable extension of Railways at the present time had not commended itself to me, because I saw much difficulty in providing the necessary funds, yet it is no doubt essentially a question of finance at bottom. And if, on a further examination, it were shown that the burden on the finances would not be increased in an objectionable manner by any moderate yearly extension of Railways, the question is one which is well worthy of consideration.

12. On these grounds, therefore, I am of opinion that it is expedient for the Government of India, at the present time, to take a comprehensive view of the probable future requirements of the whole of India in respect to Railways, in a manner somewhat similar to that in which Lord Dalhousie reviewed the question when the introduction of Railways was first discussed. I see no reason for doubting that a very useful and comparatively very correct estimate may now be made of the essential Railway wants of India for the next 20 or 30 years, and that a scheme of a system of Railways could be prepared which would indicate with tolerable precision, the best method of meeting all these wants.

13. One consideration of much importance in relation to these works is the degree to which the several Companies should be allowed to extend their undertakings, and the limits that should be placed to the Districts into which their lines should be permitted to run. The danger of allowing too great a development to any one Company has formed a topic of discussion for the Government of India in former years in relation to some of the existing Railways, and the question is one which should not be lost sight of in such a review of Railway extension as I have suggested. An overgrown Company is likely to be a source of embarrassment or even danger to the Government, from the power of personal influence which it must possess, while its efficiency for the essential purposes for which it was created is almost certain to be diminished.

14. At the same time, I think that a financial review should be made of the actual working of the guarantee system to the present time, with the intention of placing before the Government its results, having reference to the actual money payments it has involved, and the probable course of such payments in the future, if a certain moderate annual extension of Railway construction were allowed to go on. In the present year, I observe that, although the whole Railway capital paid up by the Companies is rather above 68 millions, yet the net payment of interest will amount only to about 670,000 *l.*, which is hardly one per cent. on the whole amount under guarantee. Most of the Railways are steadily increasing their income, and a permanent diminution of the interest charge is going on.

† Minute dated 2nd November 1866.

15. In connection with this part of the subject, it will be well to consider carefully a proposal† made by his Excellency Sir William Mansfield, to the effect that some fixed sum should be appropriated by the Government of India from the annual revenues, within which the payment of guaranteed interest should be limited, an extension of the capital only being allowed as the increase of the net Railway receipts reduced the actual charge on the Government for guaranteed interest. If it were found practicable to make such an arrangement, it would appear to be unobjectionable on general grounds. Another proposal by Mr. Taylor,‡ namely, that the interest charge should be taken out of capital, or, in other words, paid by borrowed money and funded, seems to me open to serious question. It would not be prudent to allow a permanent and annually increasing debt to be incurred for objects from which no direct return could be reckoned upon to meet the interest on that debt, or to reduce it. Any arrangement having in view the extension of Railways in India to the full extent of the eventual requirements of the country, must be based on the probable continuance of construction operations for 30 or 40 years, or, in other words, for an altogether indefinite period. The only source from which any set-off could be received against a debt incurred as proposed, would be the share of the surplus net receipts in excess of the guaranteed 5 per cent. which the Government might receive from the most prosperous lines. This obviously would be a very uncertain sort of income, and the proposal to supply the guaranteed interest by borrowed money appears to be inadmissible.

‡ Minute dated 13th December 1866.

16. I do not, of course, suppose that any scheme of Railways, or plan of operations, which may now be prepared in the sort of way I have spoken of, is to be looked upon as anything more than a sketch to assist future progress. But from such a general review of the whole subject, the Government will certainly derive much advantage, even if it only serves to place before us in a somewhat more definite manner than has hitherto been done the real magnitude of the task of fully supplying India with Railways. I shall in the sequel advert to some other considerations bearing on the general character of these great undertakings, which I cannot help thinking have till now hardly received the attention which they deserve from us.

17. The third subject for consideration is, the new form of contract which has been now adopted by the Secretary of State in substitution for that originally used. I observe that, the opinion of the Government of India has not been asked on the alterations introduced; but the whole question is of such great importance to India, that it is an obvious duty of the Government in this country to consider carefully the new arrangements that have been proposed, and to communicate to Her Majesty's Government the conclusions arrived at regarding them. I shall, therefore, notice in order the principal points in which the new form differs from the old one, and state the opinion I have formed on each.

Clause 1.

18. The first and most important change is the introduction of a provision under which, before

before a final agreement to guarantee interest is entered into by the Secretary of State, exact projects and estimates for the Railway, or the several sections of it, are to be prepared under the instructions of the Government; and the final grant of the guarantee will be dependent on the projects and estimates meeting the approval of the Secretary of State.

19. There can be no question that this provision, if it be properly carried into practice, will be a most valuable help to the Government in enforcing economy in construction, which is the most important consideration in the prosecution of Railways in India, or anywhere else. Wasteful expenditure of Capital in first construction is no less hurtful to the Government, and to the public, than to the Companies. While it permanently depresses the profit to be derived from a Railway, and thus injures the shareholders, it requires much higher harges to be taken from persons using the line; and by making the capital less profitable, and by keeping back the development of the traffic by the necessity for making high charges, the investment in Railways is less favourable, and the burden put on the Government in the shape of the guarantee of interest is made heavier and continued longer than would otherwise be necessary. I have no hesitation in saying that, had proper economy been enforced in the construction of the existing lines of Railway, the charge on the Government for guaranteed interest would, for several years past, have practically ceased, and in most cases the lines would have been paying a dividend in excess of 5 per cent.

20. It is a very great misfortune for the shareholders, and for this country, that a more accurate perception of the truth of this position has not hitherto existed. Anything which the Government can do to restrain to the utmost the outlay of capital, provided, of course, that the works shall be thoroughly well and substantially constructed, will be unmixed good. The knowledge obtained by past experience is, I believe, now sufficient to admit of the Engineers, both of the Companies and of the Government, very fairly estimating the real probable cost of Indian Railways, and of distinguishing between outlay which is essential and which is not essential. Those unforeseen obstacles in the way of transporting the heavy materials required for Railway works, which were the cause of so much of the wasteful expenditure on many of our lines, have now, in a great measure at least, been removed by the construction of the existing main Railways, which are carried into the very centre of the country in many directions.

21. On the whole, therefore, I consider that, if the Government and the Companies really take up the task of extending Railways in a spirit of proper economy, and if both of the responsible parties will insist on their Engineers doing all that is possible to reduce needless outlay, while the essential requirements of stability are not overlooked, a very sensible reduction of the average cost of the lines should follow. From what I hear, I am disposed to think that instead of 15,000 *l.* to 20,000 *l.* per mile of single Railway, which has too often been the outlay, a sum of 10,000 *l.* per mile should be the outside cost in a district of ordinary character, and that the average should even be within this amount.

22. The new provision requiring a design and estimate to be prepared under the directions of the Government, should be a powerful instrument in our hands for securing economy in construction. The proper course to adopt, as it seems to me, in giving effect to this condition of the new Contracts, would be for the Government to ascertain as well as practicable the probable character of the traffic to be expected on the projected line. The experience obtained from neighbouring open lines, or lines in districts of similar character, will commonly be sufficient to admit of such an estimate being fairly arrived at. On this estimate of income, the Government will be readily able to form an opinion as to the extent to which it will be prudent to give a guarantee. An average mileage rate of first cost could thus be fixed, beyond which the Government will settle that it will on no account go, and within this sum might be named to the Company's Engineers as a proper amount, having regard to probable unforeseen outlay and excesses over the estimate from various causes, on which the character of the works should be based.

23. The Companies should be brought to understand that the Government laid it down as an absolute condition of giving the guarantee, that a satisfactory estimate should be prepared showing a probable profit in excess of the guarantee within a reasonable term of years, say 8 or 10. They should also be made to feel from the outset that they were placed in an exceptionally favourable position by the Government, only on the understanding that they would cordially co-operate with the Government in securing strict economy. That the Government regarded them as the Agents for carrying out Railways in conformity with the wishes of the Government, and that their Engineers must accept this position frankly. The Government should distinctly declare that they refused to guarantee interest on Capital to be laid out under the virtual dictation of the Company and its Engineers, and that this declaration would be strictly acted on.

24. But it would be of little avail, in my opinion, to express such resolutions unless at the same time the Government took the power to enforce them. To effect this, the Government should be able to remove or suspend any Officer of the Railway Company acting in opposition to the terms of the contract, or otherwise not properly performing the duties entrusted to him.*

25. Such

* See, on this subject, Government of India's Despatch to Secretary of State, No. 68, dated 27th July 1861; and Mr. Laing's Minute of 1st April 1861, extract annexed.

25. Such a power I consider also is called for, not only to strengthen the Government in dealing with the construction of new Railways, but equally to give it the necessary control over Railways in operation. The position of the British Government in India is such that a plenary power should be placed in the hands of the supreme authority admitting of the summary removal of any Railway official by whose acts the peace or security of the country were endangered, whether such acts were the result of wilful misconduct, or of mere ignorance or folly. It is necessary to contemplate the extension of our Railways at no distant date into the territories of Native Princes, where a very slight provocation might lead to the most serious political difficulties, if the Government of India had not full power to interpose and remove the cause of danger. In like manner, the peace of our own territories might readily be disturbed in an alarming manner by the indiscretion or misconduct of Railway officials over whom the Government at present has no control.

26. I am disposed to regard this question as one of grave political moment, which I trust the Secretary of State will see fit to consider with the attention which it seems to me to demand. The power which I desire to see placed in the hands of the Government of India is one which, in practice, would not be used excepting in cases of real urgency. The fear most certainly would be that there would be too little inclination to exercise it, and not too much. A reference to the original Railway contracts* leads me to think that the exercise of this power may very probably have been contemplated among the acts which the Government was authorised to perform in the control of the Railway Companies. The Clause conferring on the Government its general powers of control, ends with a sentence declaring that the Government shall have no power to *appoint* servants of the Company. I am informed that the decision that the Government has no power to dismiss, was based on a presumed technical legal interpretation of this clause regarding the power to appoint, it having been argued that no special provision having been made as to dismissal, the power would naturally go with that of appointment. But if there had been a definite intention that the Government should not have power to dismiss, surely words would have been added to say this as clearly as to deny the power of appointment.

* Clause 10, old form.

27. The change in the rate of exchange,† which is now fixed at 2*s.* for the Rupee instead of 1*s.* 10*d.*, is an obvious improvement.

† Clause 7, new contract.

28. The grant of the land to the Company in perpetuity,‡ which abrogates the right of the Government to take possession of the Railway as ground landlord, appears to me to be a needless concession, by which no practical advantage whatever is bestowed on the present shareholders, and an important future benefit is taken from the Government of India. With a 5 per cent. guarantee of interest for 99 years, the present value of Railway stock would not be sensibly altered, whatever was the ultimate disposition of the Railway. Such a concession as this in no way facilitates, as I believe, the raising of the necessary Capital for Railway construction, and the right of the State to resume possession at the end of 99 years should, in my opinion, be affirmed in all future contracts.

‡ Old clause, limiting possession to 99 years, omitted.

29. I am aware that the power of this nature, which was affirmed in one part of the old contracts, was taken away in a subsequent part. But this has little to do with the question. I also mention as a fact that the Indian Branch Company at one time accepted, without complaint, the provision relating to the Railway reverting to the Government at the end of 99 years as a part of their former contract, which, in all respects, was very much less favourable than that now offered to them.

30. And here I desire to call very special attention to a point which, so far as I am aware, has not yet been looked at in the serious manner it deserves. I refer to the future consequences of the investment by English capitalists of very large sums in India. However we may bridge over in our imaginations the gulf which separates the present from the time when India shall cease to be a dependency of Great Britain, it is difficult to arrive at any other conclusion than that such a time must come. Moreover, it is impossible to avoid the contemplation of a possible period during which the position of a British Government in India may once more be one of grave difficulty. In either of these positions, I would ask, what would be the effect of the investment in Indian Railways of a capital perhaps amounting to one or two hundred millions sterling?

31. So far as India herself is concerned, the question is not important, perhaps; but to England and English interests it is very far from being so. The occurrence of any serious political difficulties which should make it impossible for Indian Railways to be worked with a profit, and should at the same time put it out of the power of the Indian Government to make good the guaranteed interest, would have a most calamitous effect on the holders of Indian Railway Stock, and could not fail to lead to very serious embarrassments to the Government of India, and probably to that of Great Britain also. To the Government of India it would, in a time of great trouble, add enormously to its financial difficulties, and possibly entirely destroy its credit.

32. This consideration, however, does not in my estimation legitimately lead to the conclusion that it is therefore improper to accept English Capital for the prosecution of great undertakings in India, but only to this, namely, that every reasonable effort should be made to prevent the permanent accumulation of very large investments of English Capital in works or securities essentially dependent on India for their returns. The risk of which I speak, though real, is not of present urgency. Nor, under the circumstances in which India and England

England are placed in relation to one another, can it be said that the duty of England to assist her dependency is set aside by any superior call to protect herself. For present purposes of profit these investments are reasonable and proper, and cannot be impugned.

33. I therefore argue that, in behalf of the British investors, the British Government of India should by degrees obtain complete possession of these great works, either by means of a special covenant to be inserted in future contracts, under which the Government shall come in as ground landlord, or by means of actual purchase. It would be a matter for careful consideration how the purchase should be effected. The attempt to pay for any Railway in one sum would, in most cases, be very difficult. But there seems no difficulty in arranging for the gradual purchase of the stock operating in the manner of a sinking fund, by moderate annual payments spread over a series of years. A right, for instance, might be secured to the Government by special covenant in future contracts to buy up yearly some fixed moderate amount of the Railway stock at par. Also, on the period arriving when the Government has the power of purchase under the existing contracts, the old Companies might be required, under pain of being bought out altogether, to make some reasonable arrangement of like nature. A yearly payment of half per cent. on the whole Capital for about 25 years invested at 5 per cent. would amount to a sum which would thenceforth yield interest sufficient to pay 1 per cent. on the Capital; and if this interest alone were applied to continue the purchase, it would be completed in about 31 years more, or in 56 years from the commencement of the operation. An annual payment of 50,000 *l.*, continued for 23 years, would, in like manner, accomplish the purchase of 80 millions of Railway stock in about 100 years. It is not, however, necessary for me to enlarge more on this subject, and I will now leave it for such attention as it may, on further consideration, seem to deserve.

34. The new arrangement* as to the fares and tolls to be charged by the Company for the use of the Railway seems unobjectionable. Perhaps, however, it might be better to make the phraseology a little more explicit as to the right of the Government to fix maximum rates of passenger fares for all classes, so as to secure a cheap class; also to classify goods and animals, and to fix rates for each separate class. The necessity for exact language has already been proved by attempts on the part of some of the Companies to contest the full power of Government under the existing contracts.

* Clause 8, new.

35. The interest† now allowed on Revenue deposits is only carrying into the contract a concession already made to the old Companies.

† Clause 14, new.

36. The modified power of purchase seems unobjectionable.

37. Clause 24‡ is somewhat ambiguous on a point on which obscurity is very objectionable. It virtually determines whether expenditure not passed to the Capital Account shall in the end, after the Railway is completed, continue or not continue to be included in the guarantee of interest. The question is, what is the proper interpretation of the words referring to the re-fund of the Capital which remains in the hands of the Secretary of State after the Railway is opened.

‡ Clause 24, new.

38. Do the words "the Capital which shall be so re-funded," include *all* the money at any time paid back to the Company's Officers from the Capital lodged with the Government? If so, all of this money which has *not* been passed to the Capital Account of the Railway is presumably with the Company, and will therefore be excluded from the guarantee after the account has been so made up. If the words will not bear such a construction, they virtually waive for the future the power of the Government to disallow expenditure incurred without authority, or even with a deliberately fraudulent intent from the ultimate guarantee.

39. I cannot suppose that the Secretary of State has such an intention as this. It is true that the penalty has hitherto not been enforced; and that in one case, notwithstanding the plain proof that the Company's Officers had acted in deliberate defiance of the orders of the Government, a sum disallowed by the Government of India was subsequently passed by the Secretary of State.§ But special reasons were assigned for this leniency, and the Secretary of State still declared that he would, if occasion arose, exercise his power. It seems plain that some such power is really essential to admit of the necessary control being exercised over the Agents of Companies who would fear the displeasure of their employers, however little they cared for the orders of the Government. It is to be noticed that, besides this power, the only remedy against any misapplication of the Railway funds is the extreme measure of taking over the whole Railway, and paying back to the Company the whole of the Capital.

§ Secretary of State, No. 8, dated 24th February 1864, and No. 27, dated 25th April 1864.

40. My own opinion is, that this power should by no means be permitted to be treated as a fiction, and that so far from any indication being given that the Government were disposed to relax their control over the strict application of the funds to approved works or objects, on the contrary it should plainly be said that renewed vigilance would be exercised; and the Government should follow up the declaration by giving all needful support to their officers in carrying out these intentions.

41. It is not to be disguised that much of the wasteful expenditure which has arisen in connexions with Indian Railways, has been duly pointed out before it was too late to stop it by the Consulting Engineers, and hat these Officers have not on all occasions been supported

by the Government in their attempts to enforce economy. In re-commencing the system of guarantee, I trust that the responsibility of the Government Consulting Engineers to do everything that is in their power to secure the rigorous application of the Capital under guarantee, in accordance with the projects and estimates approved by the Government, will be plainly declared; and that, while all neglect on their part to act firmly up to their duties is seriously checked by the Government, they may receive the full and uncompromising support of the Government in the proper performance of those duties, which, in their nature, must at times lead them to advocate measures which will be displeasing to the Railway Company's Officers.

42. I would take this occasion also to affirm plainly, what is too often overlooked, that the Government in its relation with these guaranteed Railway Companies, is by no means an intrusive power which has no pecuniary interests at stake which it may legitimately protect. It is estimated that, while the Companies will have to supply about 81 millions for the Railways now under construction, the Government contribution will be 7½ millions for land, loss by exchange, and supervision, 14½ millions for interest * paid in excess of net revenues, and 4½ millions in interest due on those payments of guaranteed interest. In all, the Government will have paid 26½ millions against the Companies' 81 millions. This is no visionary contribution, and it is monstrous to say that, under such circumstances, the Government is doing anything beyond its plain duty to the Indian community when it requires that every possible precaution shall be taken to prevent waste.

43. It seems desirable, therefore, to indicate to the Secretary of State the necessity for removing all doubt as to the meaning of the concluding words of Clause 24 of the new contract, and the advantage of making the words referred to perfectly explicit as to the intention of the Government.

† Clause 27.

44. The provision † under which the Company is made subject to all acts of the Indian Legislature, is desirable for the purpose of removing doubts which might arise as to the Company having claims against the Secretary of State, in consequence of new obligations put upon it by legislative enactments, for which it could be alleged the Government was really responsible.

45. This concludes all that need be said on the changes introduced into the new contract. There are, however, certain provisions which occur alike both in the old and new form, on which some comments seem to me to be called for.

Clause 18

46. The first matter is the stipulation regarding the transport of the mails in Clause 18. The words are still ambiguous as to the free haulage of Post-Office special carriages. This should be distinctly affirmed to be a right of the Government.

47. The power of the Government to order special trains should be guarded also.

48. The provisions as to the transport of troops, police, and Government stores and cattle, are not very clear. A revised form of the whole of Clause 18 might be suggested to the Secretary of State.

49. The last point to which I desire to refer is, the arrangement under which the guaranteed interesta dvanced by the Government is repaid from the earnings of the Railways. The plan now followed is to divide equally between the Government and the Company any excess of the net receipts above the amount of the guaranteed interest. But I am not satisfied that this is equitable to the Government, and I consider that it is desirable to stipulate that the Government should take the *whole* surplus until the interest debt is paid off. If the Government, in fact, supplies more than one-fourth of the aggregate outlay before the Railways are got into a condition to pay the guaranteed rate of interest, it seems a moderated emand that they should be repaid their advances for interest before the Company takes more than the stipulated 5 per cent.

50. I am aware that it may be said that the prospect of the increased dividend to be obtained by the shareholders when the net receipts exceed 5 per cent., will have a useful effect in producing economy of management, and so forth. But I confess to thinking little of the value of such a stimulus. The real stimulus to economy must be strict supervision by the Government in the expenditure which takes place once for all on the first construction of the Railways. The management and working is of comparatively little importance, for it is under continued control, and is at all times susceptible of correction and improvement. Not so the capital outlay which, being spent, is beyond future care. Therefore I do not attach much value to this consideration.

51. If, however, such a claim is deemed likely to be so seriously objected to by Companies as to lead to difficulty in raising money, then I would substitute for it a provision by which the Government should *permanently*, after the completion of the Railway, take *absolutely* one-half of the net receipts in excess of the guarantee, the other half going to the Company as now. Then the advances for the guarantee would be no longer regarded as a debt to be repaid by the Company, but a contribution of Capital by the Government, on account of which it took the half share of the earnings in excess of the fixed guaranteed rate of interest.

This

* In 1867, Mr. Danvers states that the debt was 12 millions, 19 millions having been advanced, and 7 millions recovered in net receipts. Paragraph 71 of Report.

This arrangement would have the advantage of doing away entirely with the complication of the interest account as now required. Practically, it will be necessary to continue the payments to the Government of the half excess net receipts in order to make good the interest advances with the simple interest charge thereon, almost to the end of the term of 99 years in all but the most prosperous of the Railways, and on the expiry of the term, the Government has no power to claim any residue of the interest debt.

52. I am inclined indeed to think that, if it were possible, both of these two claims should be added to future contracts,—*first*, that *the whole* excess over the guaranteed rate of interest should go to the Government until the interest advances were repaid, and that afterwards the Government should take *one-half* of the excess. I can see nothing in such claims at all beyond what the Government may, with propriety, make, and the only question that seems to me to arise in respect to them is, whether or not they will practically affect the facility of finding Companies to undertake Railways in India with such expedition as the Government may deem desirable.

John Lawrence.

SIMLA, the 16th August 1867.

EXTRACTS from the HONOURABLE S. LAING'S Minute, and from Despatch to Secretary of State, No. 68 of 1861, referred to in Paragraph 24 of HIS EXCELLENCY THE GOVERNOR GENERAL'S Minute; dated 16th August 1867.

Extract from Mr. Laing's Minute.—"Another great evil of the present system is the divided control. With an absolute guarantee, the Government must in self-defence exercise a very considerable control over the expenditure of what is virtually its own money.

"But in cases of this sort, the only real control is to be able to send every one about his business who neglects his duty, or who fails. No man should have the spending of a sixpence of our money to whom we cannot say,—'Now mind, this is what you have undertaken to do, or get done, for this money, and if you don't, you may be a very good sort of man, but you don't suit us.'

"This, with liberal treatment of those who do succeed, is the only way of getting work of this miscellaneous sort well done; and here the Company stands directly in the way, and introduces wheel within wheel, divided responsibility and diplomatic correspondence, when there ought to be prompt action."

Extracts from Despatch.—"On the general question we have little to add to what has, on previous occasions, been put before Her Majesty's Government, especially in the Governor General's Despatch of 29th November 1858. We consider that the system has been a most costly one, and that the control over expenditure has been insufficient owing to practical difficulties in its exercise (sufficiently set forth in the despatch above alluded to), and to the fact noticed by Mr. Laing, that there can be no real control where there is no direct authority over the staff, extending to dismissal if necessary.

"We agree with Mr. Laing in thinking that advantage should be taken of the concession of any such aid to improve our position in relation to the Companies receiving it, to bring the Government, through its controlling Officer, into a position of more direct authority over the operations, to secure to the Government that power of dismissal without which there is no real control, and to amend, if possible, some of the most troublesome articles of the contract alluded to by Mr. Laing."

Memorandum as to Purchase of Railways—(*Paragraph* 33 *of the* GOVERNOR GENERAL'S MINUTE).

FROM the 1st to the 23rd year, a payment of $\frac{1}{4}$ per cent. on the Capital is made yearly for the purchase of stock, the interest at 5 per cent. on the investment being also added each year to the sum applied to purchase. At the end of the 23rd year, the interest would exceed 1 per cent. on the Capital, and thenceforward this interes alone is to be applied to the purchase. The whole Capital is paid off in the 56th year. The actual payments would be $\frac{1}{4}$ per cent. for 23 years, or $11\frac{1}{2}$ per cent. on the whole Capital. On 80 millions, the presumed total Railway Capital, the total payment would be 9,200,000 *l.*

Year.	Interest.	Amount of Investment.	Year.	Interest.	Amount of Investment.
	£.	£.		£.	£.
1	- - -	·5	29	1·322	27·761
2	·025	1·025	30	1·388	29·149
3	·051	1·576	31	1·458	30·607
4	·079	2·155	32	1·530	32·137
5	·108	2·763	33	1·607	33·744
6	·138	3·401	34	1·687	35·431
7	·170	4·071	35	1·772	37·203
8	·203	4·774	36	1·860	39·063
9	·239	5·513	37	1·953	41·016
10	·276	6·289	38	2.051	43·067
11	·314	7·103	39	2·154	45·221
12	·355	7·958	40	2·261	47·482
13	·398	8·856	41	2·374	49·856
14	·443	9·799	42	2·493	52·349
15	·490	10·789	43	2·617	54·966
16	·540	11·829	44	2·748	57·714
17	·591	12·920	45	2·886	60·600
18	·646	14·066	46	3·030	63·630
19	·703	15·269	47	3·182	66·812
20	·763	16·532	48	3·341	70·153
21	·827	17·859	49	3·508	73·661
22	·893	19·252	50	3·683	77·344
23	·963	20·715	51	3·867	81·211
24	1·036	21·751	52	4·061	85·272
25	1·088	22·839	53	4·264	89·536
26	1·142	23·981	54	4·477	94·013
27	1·199	25·180	55	4·701	98·714
28	1·259	26·439	56	4·936	103·650

If the annual payment had been $\frac{1}{4}$ per cent. instead of $\frac{1}{3}$ per cent., the result at the end of the 23rd year would have been an investment of 10·357 per cent. of the whole Capital, bringing at 5 per cent. an interest of ·518 per cent. If at this time the actual payments were stopped, and the interest only applied to continue the operation at the end of the 56th year, the result would be an investment of 51·839 per cent. of the Capital, bringing an interest of 2·468 per cent., the subsequent results would be as follows:—

Year.	Interest.	Investment.	Year.	Interest.	Investment.
	£.	£.		£.	£.
56	- - -	51·825	64	3·646	76·570
57	2·591	54·416	65	3·829	80·399
58	2·721	57·137	66	4·020	84·419
59	2·857	59·994	67	4·221	88·640
60	3·000	62·994	68	4·432	93·072
61	3·150	66·144	69	4·654	97·726
62	3·307	69·451	70	4·886	102·612
63	3·473	72·924			

Showing that the purchase would be complete in the 70th year. In like manner, taking the payments at $\frac{1}{6}$ per cent. for 23 years, the investment in the 70th year would be 51·306 per cent. of the whole Capital, and in 14 years more the whole would be paid up, or in the 84th year. Again, by a further reduction of the annual payment to $\frac{1}{10}$ per cent., the period of final purchase would be deferred till about the 100th year. On this last supposition, the actual annual payment would have been on 80 millions, 50,000 *l.* continued for 23 years, or 1,150,000 *l.* Of course at the end of the whole period the Government would come in to the realisation of 5 per cent. per annum on the whole 80 millions, or 4 millions per annum.

Minute by Major General the Honourable Sir H. M. Durand, c.b., k.c.s.i., on the new form of Railway Contracts; dated 20th September 1867.

Contract with Indian Branch Railway Company for Railways in Oudh and Rohilkhund.—General Terms of Contracts granting Guarantees of Interest to Railway Companies.

The Despatch from the Secretary of State, No. 18, of the 23rd March last, intimating the negotiations with the Indian Branch Railway Company, is a practical admission that English Capital will not embark upon the construction of Railways in India without a guarantee of interest from the Government of India. Native Capitalists having uniformly held back from becoming shareholders in these undertakings, and having even retrograded from last year's proportion of being a little over to that of being below one per cent., India must look exclusively to England for the Capital necessary for any extension and completion of her Railway system, and must be content to obtain it on the best terms as to the rate of guarantee that can be secured in the English money market.

This financial disadvantage under which India labours in the construction of its Railways is, however, compensated by the rights which it confers upon the Government of guarding the interests of Indian as well as those of the English Shareholders. As the payment of guaranteed interest is a charge on the Revenue raised from the people of India, not upon the capital raised by the English Shareholders, the Government of India occupies a different position with respect to Indian Railway Companies, from the position in which the Home Government stands with respect to Railway Companies in England. Though a truism, it is necessary to note the fact, for it explains the diametrically opposite results of the two systems, and also the utterly different obligations under which the Home and the Indian Governments, as well as the shareholders of the two distinct systems lie.

The basis of the English system was private enterprise and competition; in other words, speculation but partially and very inadequately controlled by the authority of Parliament, which at first thought the British Railways such profitable investments, that it was provided by legislative enactment, that when dividends amounted to 10 per cent. it was at the option of the State to take over the lines. Regarded almost, if not quite, in the same light as other Joint Stock Companies, and being well represented in Parliament, however ruinous the extent to which rivalry and unremunerative expenditure was carried, and however destructive to the interests of the original Shareholders of many of the Lines, the speculative mania of their Directors, Government possessing no direct and incontestable stake in these adventures, its interference was in effect paralysed by the prevalent principle of allowing free scope to private enterprise so long as prior rights and claims of opposing Companies were not seriously infringed.

Hence it ensues that there is justice in the remark, that whatever the faults Directors may have committed, they have done nothing without the deliberate approval of Parliament, and that the whole of the ruinous procedure of those Railway Companies now in a state of collapse, was carried on under the formal and solemn sanction of Parliament.

Competition and speculation of this dangerous character has no chance of support where the direct revenues of Government are so deeply pledged, as is the case with the Indian system of guaranteed Railways. As no one can reasonably contest the immense pecuniary stake of the Government, in the success of the Indian Railways, so no one can call in question the right or the wisdom of the Government of India in so adjusting lines, and controlling expansion of branches, as that it shall carefully eschew the fatal errors which are now depressing to a ruinous extent the value of some 400 millions of property in Great Britain, and that, too, at a period when the Bank of England rate being 2 per cent., and the market rate $1\frac{3}{4}$ per cent., there should be no difficulty in the way of sound Railway Companies obtaining accommodation under most favourable conditions.

The inference that may be legitimately drawn from the contrast of these two systems is, that as the ruling principles which lie at the root of both are wholly distinct, there is a very wide difference, and but very faint analogy between the positions of the Home and the Indian Governments with regard to Railway Companies. From the nature of the compact, which saddles its resources with the payment of guaranteed interest, and the gift of land free of charge, the Government of India incurs much greater risk and far heavier responsibilities than fairly fall on the Home Government; and, further, its own special risks are greatly aggravated by the fact that, practically speaking, neither the Shareholders nor the Directors, all resident in England, can effectively supervise or control Railways in India. Government thus is answerable at the bar of public opinion, not only for the protection of the interest of the Indian tax-payer, who provides the guaranteed interest and the land as a donation, but also that the indifference of Shareholders secured 5 per cent., and too remote to watch and control the expenditure of their Capital shall not by rendering Indian Railways a by-word for scandalous extravagance and mismanagement, check the flow of British capital to these important public works.

It is hardly necessary, in addition to the foregoing essential differences of primordial conditions to dwell on the political and military considerations which still further draw a strong line of demarcation between the Indian and the English systems. In England, Railways do not run through States in various degrees of dependence, claiming under treaties, complex territorial and suzerain rights, which even the international laws of Europe are not conversant with, and which the compact United Kingdom is absolutely free from; nor in Great

Britain, sea-girt and comparatively homogeneous in its population, can the State be said to be liable to the same military contingencies, internal and external, as are unfortunately indissoluble from the accidents of our rule in India. To dwell upon these, also a truism, though one pregnant with dangers, would demand far more space than is consistent with the limits of this Minute. It must suffice to advert to these major considerations in a manner very inadequate to their real importance, still more inadequate to the correction of their exceedingly imperfect conception by the British public in England, but to the momentous importance of which the Secretary of State and his Council must be so fully alive that any expatiation upon them would appear almost a work of supererogation. Dismissing them briefly in the confidence that their very magnitude precludes their being ignored with ignorant and presumptuous indifference, I feel confident that no mere insular prejudice will deem them of ideal or exaggerated moment. Yet, I may, perhaps, be here excused for repeating what I have more than once found it advisable distinctly to state, namely, that at best what we designate peace in India, is and must be a state of armed vigilance.

Under the combined considerations of our political and military status of the responsibilities which press upon the Government from the system of guaranteed interest as opposed to that of the English system of competition and speculation in the very midst of a plethoric abundance of local Capital, I can hardly conceive anyone contesting the fact that the right of the Government of India to exercise an effective control over Indian Railways is a far more imperative right, and one much more inherent in, and inseparable from, its condition, as also infinitely more a paramount necessity, than the intervention of the British Parliament in the affairs of British Railways. I therefore concur with the principle which underlies the Minute of the Governor General, that the Government of India must exercise, not a shadowy and nominal, but a stringent and effective control over the distribution of lines of Railway, over their projected works, and over their management and expenditure. In short, I hold the opinion that it is, and should continue to be, the deliberate policy of the Government of India to act on the broad principle that a public monopoly of the magnitude of Indian Railways must remain in public, not slip into private, hands; must be administered for the progress and welfare of the general public, as well as for the profit of the Railway Companies; and that these all important objects can only be secured by the active, efficient, authoritative control of the Government of India. With the example before us of the hopeless state into which private enterprise has sunk 400 millions of British Railway Capital, it would be little short of insanity to pursue such a precedent, and to apply it to Indian Railways. We see that even where it was the question of buying up English Railways, involving the purchase by the State of between four and five hundred millions of Capital, that remedy was gravely considered, and rejected ultimately on grounds which have no application whatever to Indian Railways. Whereas in the case of the Irish railways, the conditions of the question were different, and the purchase by the State was a matter of 20 millions, nstead of four or five hundred millions. Two of the Commissioners, Sir Rowland Hill and Mr. Mansell, were strongly in favour of buying up the lines, and thus securing for Ireland an efficient and economical Railway administration under Government control. The majority of the Press in England, and that by far the best informed part of it, supported the views of Sir Rowland Hill and Mr. Mansell with regard to the State purchase of the Irish lines, because eagerly desired by the Shareholders themselves, because it is a moderate financial transaction quite within the power of Government to effect without difficulty, and because Irish Railways having been already aided by large advances from Government, and the system of subsidies having failed to secure the companies from insolvency, the logical issue of such a position of affairs was that Government should complete these transactions by buying up the lines. It is known that Government has since practically adopted the view of the minority of the Commission, and has introduced a Bill which is to empower the acquisition by the State of the whole system of Irish Railways.

However insuperable the difficulties which present themselves to the amelioration by private enterprise of the state of insolvency into which the English and the Scotch lines have fallen, it is palpable that although the English and Scotch Railway Companies are averse to absorption by the State, and the Government shrinks from so stupendous a transaction as the compulsory purchase at a price fixed by arbitration of between four and five hundred millions of Railway Capital by the creation of 500 million of stock, to the derangement and depreciation of existing Government securities, yet that the British public have no hope in the present helpless state of Railway interests, but from the intervention of the aid of Government. Whatever form that assistance may take, the cry of the Press and the Public will probably before long force the Government to devise some mode of aiding the Railway interests to extrication from the existing ruinous depression, but we may, I think, feel certain that whatever the mode in which the Government may come forward to lend a helping hand to English and Scotch lines, this will only be done under conditions of proper Government supervision of the working and resources of the aided lines, and of the exercise, on the part of Government, of restrictive powers, as to the construction of competing lines, or the development of unprofitable branches. In fact, there will be an approach, so far as feasible, to the Indian system, which now forms a perpetual subject of contrast with the English system. Whilst money in the Stock Exchange is freely offered at 1½ per cent., it is something marvellous the state of paralysis and collapse into which the English and Scotch Railway Companies have fallen, and the circumstance is utterly condemnatory of the system based on uncontrolled private enterprise.

With this great national failure before us, we are, I think, warranted—

1st. In

1st. In opposing any relaxation of the control of the Government of India over Indian Railways.

2nd. In arranging some mode by which in a term of years the Government of India shall effect the purchase of Railway stock, and become the proprietor of the Indian Railways.

So far from thinking that the control exercised by the Government of India has been excessive, and has proved prejudicial to the progress and efficiency of Indian railways, its interference as some check on profuse expenditure has been most wholesome so far as it went. Unfortunately, an interested outcry, acting on an ill-informed public, had for a time too great an effect even on the Government itself, which shrank from supporting its Consulting Engineers in the discharge of their delicate and difficult duties. The Public and the Press failed to see how deeply the interests of the community at large, and of the Shareholders in particular, were bound up with the exercise on the part of Government of an effective and judicious control. The failures and disasters on the Great Indian Peninsula Railway could not, certainly ought not, to have occurred if the Government control and supervision had throughout, from the projects and estimates for the works to their construction and completion, been properly exercised. It is not necessary here to enter upon any discussion of the real causes that rendered Government control more slack on the Bombay side of India than in Bengal and in the North-Western Provinces, but certainly the result proves that, however vexatious the interference of the Consulting Engineers and the Government may often have been regarded by the East Indian Railway local authorities, the Public places far more confidence in the character and stability of the great Railway works constructed by the East Indian, the Delhi, and Punjab Railways, as also by the Madras Railways, than it does in the case of the Great Indian Peninsula Railway, and the Bombay, Baroda, and Central India Railway; though the expenditure on the latter was enormous, and with respect to both lines the interference of Government was reduced to the minimum consistent with the obligations of Government.

From the preceding remarks it will, therefore, be manifest that I entirely agree with the views expressed by the Governor General in the paragraphs of His Excellency's Minute, 18 to 29 inclusive.

Government powers of control must be strengthened not weakened, and the bugbear of centralisation, a convenient term for disparaging any measure tending to subject Companies having public monopolies to Public authority and effective control, must be treated as what it really is, a specious sophistry used as a veil for wasteful expenditure.

In the case of loans for remunerative Public Works, I advocated that no Public Works should be undertaken of which there was not a real prospect of their becoming self-supporting, besides accomplishing the gradual extinction of the loans, and I remarked that general taxation, applied to the advantage of localities is, under other conditions, hardly defensible, but that the objection might be removed by the establishment of a Sinking Fund, and making the loans repayable within a fixed period.

It is on the same principle that I advocate the gradual purchase by Government of Railway stock, so that within a fixed period the Government of India may become the proprietor of Indian Railways. It is a course calculated to give confidence to English Capitalists; it is fair to the taxed Indian community; and ultimately it should prove profitable to the Indian Government.

On other points my opinions are so much in unison with those of the Governor General, that it is unnecessary for me to enter into what would prove a parallel view of the provisions of the new contract, differing only on some minor details from his Excellency's remarks, and differing in no essential way even in such minor differences.

Simla, 20 September 1867. (signed) H. M. Durand.

Minute on the System of 5 per Cent. Guarantees for Extensions of the Railway System in India, by His Excellency Sir W. R. Mansfield, K.C.B., Commander in Chief in India; dated 12th January 1866.

Although it may be somewhat premature to move seriously in the matter of Railways for Burmah, the proposals made by Colonel Phayre afford an opportunity for an invitation to the Secretary of State to reconsider the veto he has been pleased to record in the further entertainment of 5 per cent. guarantees for extensions of the Railway system in India.

I am induced to open this question for discussion, because I think the experience of the last two years regarding the success of the guarantee system, which is rapidly doing what was desired by its projectors, does not receive the attention it deserves when new schemes solicit our consideration. Thus, the South-Eastern Railway now redeems its guaranteed interest; the returns of the two great systems of the East Indian Railway and the Great Indian Peninsula Railway are so large, that it is clear the like result is about to be immediately obtained from their operations. These lines have, however, to be doubled.

The Bombay and Baroda Line with its flat gradients, and the connection of Bombay with the wealth of Gujerat, cannot fail to achieve a similar consummation in a short time now

that the line is without break of gauge; consequently it may be said that the only lines which do not pay, and for some time to come are not likely to redeem, the 5 per cent. guarantee, are the Madras Lines and the Sindh and Punjab Railways. On the whole, however, it may be affirmed that, within the brief period of 14 years from the first sod being turned in India for a Railway system, it has been shown that 5 per cent. can be ensured in well-selected lines, and that Government has finally run no considerable, or, indeed, real risk in its guarantees.

Yet, whatever the apparent weakness of the guarantee system, we are all of us perfectly certain that, without it, not one single mile of Railway would have been constructed in British India.

Of the extrordinary benefit already conferred on the country by the present imperfect railway system, it is unnecessary to speak, but it is not improper to invite the Secretary of State to consider these benefits, and the fact that, wherever Railways have been shown, they have at once established themselves in the habits and customs of the population as has been seen in all other countries in the world.

It appears to me with all these facts before us, with our knowledge that, notwithstanding the success of the Railways, Capitalists, whether in England or in India, still look for a guarantee, and will not move in the cause without one, together with the consideration that the schemes which have been suggested in its place have failed to enlist confidence, that it may be difficult to justify a policy which shall peremptorily declare that the guarantee shall not be extended to any new lines or system of Railway. To save the taxpayer, however, I would repair an omission made when the guarantee was originally awarded to existing lines. Thus the plan of Railway enterprise pursued in Europe and America should be adopted in this country. Sufficient capital should be raised originally for a given line to enable payment of interest to be made out of capital till the given line is completed and in full work.

It is perfectly sound doctrine that the use of the capital should be thus paid for, just as construction and plant of all sorts are paid for, out of Capital, till the line having been completed, repairs and renewal of plant come to be charged against Revenue.

In this manner, the annual charge against the revenues of India during the period of construction of a Railway would cease, and the risk of a guarantee would be reduced to a minimum, viz., after construction had been completed, which, as we have seen in the instances above cited, should be almost *nil* if prudence be observed in the selection of lines for Railway projects.

I would venture to ask that the subject of this Minute may be considered in the department of Public Works.

Minute by His Excellency Sir W. R. Mansfield, G.C.S.I., K.C.B., Commander in Chief in India; dated 13th October 1867.

Contract with India Branch Railway Company for Railways in *Oudh* and *Rohilkhund*.—General Terms of Contracts granting guarantees of Interest to Railway Companies.

I abstain from adverting to points suggested by the new form of contract, as specially affecting the agreement lately made with the Indian Branch Railway Company, because it would now seem that, in this instance, it has been affirmed by the Right Honourable the Secretary of State.

But as we must shortly look for the execution of other contracts on account of new Railway projects, the preliminary discussion of which is much advanced, I would say that, whether as regards the original construction of Railways, and the maintenance of a sufficient control over capital expenditure, or with respect to the enforcing of discipline among Railway Officials in India, from the highest to the lowest, for the protection of the people, the experience of every day serves to show the expediency of adding to rather than diminishing the efficiency of the Government control, involving the removal or suspension of any Officer of a Railway Company, of whatever rank, acting in opposition to the terms of contract, or otherwise not properly performing the duties entrusted to him.

I have no difficulty in giving my general concurrence to the propositions stated by his Excellency the Governor General in his Minute of 16th August 1867.

It is to me a matter of no ordinary satisfaction that the true state of the case with regard to the guarantee system, as hazarded by me for discussion in my Minute of 12th January 1866, has now come to be generally recognised, and to be adopted in practice by the Secretary of State.

This being so, much that was uncertain before can be now treated by the Government of India, with regard to the future, with a real power of absolute definition. This I take to be the object of His Excellency's Minute as respects both the completion of a large Railway system, and the comprehensive financial arrangement which, with regard to such a system, should, as I have ventured previously to submit, extend over a number of years, instead of being the sport of the moment to be adjusted according to other immediate requirements of the empire.

I do, therefore, sincerely trust that the financial principle indicated by me in my Minute of the 2nd November 1866, *vide* paragraphs 46, 47, 48, and 49, and which his Excellency the Governor General is pleased to consider worthy of consideration, may not be lost sight of

of in the ultimate discussion of the ways and means for the construction of Railways according to the comprehensive view indicated by his Excellency.

There is one point in the consideration of these matters to which I have steadily adhered from the date when Mr. Wilson was the Financial Member of Council, and which I should like to see included in future contracts.

I take the liberty of setting out again in support of my views certain paragraphs of my Minute of 12th January 1866:

> "To save the taxpayer, however, I would repair an omission made when the guarantee was originally awarded to existing lines. Thus the plan of Railway enterprise pursued in Europe and America should be adopted in this country. Sufficient capital should be raised originally for a given line to enable payment of interest to be made out of capital till the line is completed, and in full work.
>
> "It is perfectly sound doctrine that the use of the capital should be thus paid for, just as construction and plant of all sorts are paid for out of Capital, till the line having been completed, repairs and renewal of plant come to be charged against Revenue.
>
> "In this manner the annual charge against the revenues of India during the period of construction of a Railway would cease, and the risk of a guarantee would be reduced to a minimum, viz., after construction had been completed, which, as we have seen in the instances above cited, should be almost *nil*, if prudence be observed in the selection of lines for Railway projects."

The Governor General is disposed to think that, with regard to the improved circumstances of the country, there may be a very sensible reduction on the cost of constructing lines of Railway, as compared with that of those already in use. In short, that instead of 15,000 *l.* or 20,000 *l.* per mile, the cost may be reduced in a district of ordinary character to 10,000 *l.* per mile.

As a means of securing such an important economy, his Excellency considers that designs and estimates should be required under the directions of the Government, an average mileage rate of first cost being then fixed by the Government within which a sum might be named to the Company's Engineers as a proper amount on which the character of the works should be based.

It appears to me that the amount of the capital required for a given line having been thus determined, the interest or price of the capital should be added to the amount to be raised for the term of years during which the line would be under construction, the number of years being settled according to the terms of contract and the guaranteed interest extending to the whole sum thus raised after the Railway had been finally completed within the term of years as stated in the contract.

If this proposal of mine were adopted, it would be comparatively unnecessary to discuss whether or not it be expedient to attempt to compel the Railway Companies to rest satisfied with their 5 per cent. of interest until the debt to Government should be annihilated.

I am, however, disposed to think that there would be great unwillingness on the part of English capitalists to forego a chance of a better emolument than the 5 per cent., while it would seem to be in harmony with their usual habits of thought to include the price of the capital in the amount of capital itself, as being demanded for the construction of a given work.

I fully admit the force of the argument according to which the State should ultimately become the purchaser of the entire Indian Railway system. The means proposed for doing this are ingenious, and seem to be open to no objection. For, the giving of a very small sum yearly as proposed in his Excellency's Minute, which would not be appreciably felt in the cash balances, does not lie open to the old objection against Mr. Pitt's sinking fund, viz., of borrowing on the one hand to form a saving on the other.

I assume, however, that it is intended to purchase Railway stock from year to year, and thus gradually to transfer the Railways to the State, and not to form a large fund which, in a political emergency, would be liable to be diverted to other purposes.

Simla, 13 October 1867. W. R. MANSFIELD.

MINUTE by the HONOURABLE SIR G. U. YULE, K.C.S.I.; dated 18th October 1867.

CONTRACT with Indian Branch Railway Company for Railways in *Oudh* and *Rohilkhund*.—General Terms of Contracts granting guarantees of Interest to Railway Companies.

GOVERNMENT guarantees interest on the money with which a Railway is constructed, and finds the land free of charge. Therefore Government control to prevent waste of money is a right and a necessity. The true interests of the Shareholders, who find the capital, are advanced of course by its economical and honest expenditure, but their Directors at Home are unable properly to supervise their servants here; and, moreover, the certainty of receiving 5 per cent. upon their capital, whatever happens, and perhaps also personal influences render them less sensitive to the true interests of their Company, or, at all events, less peremptory in insisting an attention to them by their servants than could be wished.

Now, Government can have but one object, viz., to get the work well done with no wasteful expenditure, but it cannot effect this object without the fullest power of control. It has not had this full power hitherto, and such an amount of power as it had, it has not exercised, has not perhaps been able to exercise. The very limitation of its power, too, has doubtless tended to render it unwilling to enter upon contests with Agents and Engineers in which it might be defeated. The disastrous results of a semi-control over agents and engineers is seen in the Bombay Railways, and though matters are not so bad on this side, that is due more to the accident of having had a man like Mr. George Turnbull at the head of the greatest and first-made railway, and to the example set there under him, than to any systematic arrangements, and good comparatively as the result on this side may be, it is by no means so good as to justify us in guaranteeing other Railways without adopting means for securing, as far as possible, economy and efficiency in work; and I know of no other means to this end than giving Government the very fullest powers of control. Its decision must be final, except when it is thought fit to refer any point to the Secretary of State, and it must have the means of enforcing its orders by the dismissal of any of the Company's servants. This complete control upon the spot by Government, which has a far stronger and more permanent interest in getting Railways well and quickly and cheaply constructed than even the Shareholders have, seems to me the chiefest of all requisites, and it ought to be fully and clearly provided for in contracts. If there is any other and better mode of effecting the object in view, let it be adopted at once, but do not continue the present system, under which in no instance has economy been secured, while in many waste has been accompanied by inefficiency and delay. In order to gain this great point, I would, if necessary, willingly assent to all the other changes in the contract, and increase the pay of the Agent and of all principal Officers. I shall now briefly notice these changes in the order adopted by the Secretary:

1st. *The submission of Estimates before a Contract is signed.*—This is a very important point; the estimates would not of course be accepted without a thorough testing by Government Engineers here.

2nd. *Rate of Exchange to be* 2*s. instead of* 1*s.* 10*d.*—Excellent.

3rd. *Grant of Land in perpetuity.*—I do not think this of much importance, and would agree.

4th. *The Company to fix Fares and Rates within a maximum; Reduction of Fares if Profits exceeded* 10 *per cent. not provided for.*—Government should have the power to alter the maximum rates at any periods.

5th. Already accepted in practice.

6th. *Empowering Government to Purchase, at any Decennial period, after* 10 *years.*—Is an improvement upon the former condition.

7th. *Guarantee of Interest on all Expenditure.—No,* unless the fullest control is ceded to Government.

8th. *Company to be subject to the Acts of the Indian Legislature.*—"Notwithstanding anything in the contract opposed to the Acts," should be added.

I fully agree in the Secretary's views as to the inexpediency of impairing the value of the guarantee, or reducing the inducements to a Company to work economically by the adoption of either of the schemes suggested by his Excellency.

The omission from the contract of two of the most important branches, the one connecting Rohilkhund with Agra and Delhi, and the other with the Punjab Line near Saharunpoor, ought to be most prominently noticed. The first-named branch ought, at all events, to be insisted on for immediate construction; the latter might be postponed for a time.

(signed) G. U. Yule.

Minute by the Honourable G. N. Taylor.

Contract with Indian Branch Railway Company for Railways in *Oudh* and *Rohilkhund.*—General Terms of Contracts granting guarantees of Interest to Railway Companies.

I propose that we reply at once to the Secretary of State, pointing out the omission of two important lines in the proposed Agreement with the Indian Branch Railway Company, and giving our opinions fully on the general question of the terms of all future contracts with Railway Companies.

It is clear that the decision in favour of the continuance of the guarantee system must now be accepted without further controversy; but endeavours may be made to strengthen the Government control as far as possible, without discouraging Shareholders by weakening the security of the guarantee.

I think that the changes in the new Draft Contract are, on the whole, advantageous, and some are very decided improvements upon the conditions in the old Agreements.

Taking

Taking the most important alterations in the order followed by Colonel Dickens at the commencement of his note—

1. I most entirely agree in the proposal to press upon the Secretary of State the importance of adopting some clear principle of action as regards the provision in Clause 1 of a previous estimate of the cost of a line based on actual survey, to be approved by Government. This may be done somewhat in the terms suggested by Colonel Strachey.

2. The alteration of the rate of exchange to 2*s.* the Rupee is a great improvement.

3. I agree that the grant of land in perpetuity, instead of for 99 years, is a concession of little importance.

4. As regards rates and fares, I entirely concur in the advantage of insisting upon more specific provisions, and I would urge upon the Secretary of State the alteration in Clause 8 which Colonel Dickens suggests.

5. Interest on Revenue Deposit (Clause 14); there is no objection to this.

6. The new purchase Clause (20) is a decided improvement.

7. I do not follow the Secretary in his objection to Clause 24. The alteration at the end of the Clause (27 of the old Contracts) seems to me one of words only; it makes no apparent change in the liability of Government as regards payment of guaranteed interest on the Capital Expenditure. Under both clauses, any surplus is to be returned to the Company with interest to date, and such surplus ceases from that time to be part of the guaranteed Capital. Clause 11, defining the Capital Account, is identical with Clause 12 of the old contracts in respect of the sanction and approval of Government to all expenditure to be carried to the Capital Account. Moreover, the clause about estimates, if acted up to, renders any further restriction unnecessary.

8. I agree as to the advantage of the change in the Clause (27) relating to legislation in India.

As regards the alteration proposed by Colonel Dickens in Clause 17, giving the Government a claim in perpetuity to half the profits over 5 per cent., I think the proposition a reasonable one, and preferable to the more important changes suggested by his Excellency the Governor General; but I am doubtful whether even this change will be acceptable in England. I would put it, however, to the Home Government.

Then, as to the power of dismissal of the Agent and other Officers of the Government, which is proposed to be given to the Government, I fully agree that such a check is most desirable, and I would urge its provision upon the Secretary of State. I very much doubt, however, its being palatable at Home, and the rejection of a clause to this effect in Colonel Strachey's Draft Agreement implies that the several Boards, at all events, are opposed to it.

In all the other remarks and proposals of the Secretary I fully agree.

Captain Williams' Note is an able and valuable *resumé* of Railway literature, and contains a collection of facts and theories of great interest.

19 July 1867. (signed) G. N. Taylor.

I do not desire to add anything to what I said in my note of the 19th July, which I have now brought on record as a Minute.

Since I wrote, the Contract with the Indian Branch Railway Company has been affirmed by the Secretary of State. All that can now be done is to forward to Her Majesty's Government the several Minutes of the Members of Government, and express a hope that the views of the Governor General and Council may be taken into careful consideration before any future contracts are concluded with private Companies.

19 October 1867. (signed) G. N. Taylor.

(Nos. 1050–60 R.)

Government of India.—Public Works Department.—Railway.

Fort William, 3 December 1867.

Extension of Railways in India.

Read the following:

Extract from a Minute by His Excellency the Viceroy, dated 16th August 1867.

"The second main point raised by this Despatch is the virtual abandonment by the Secretary of State of the attempt to accomplish the construction of Railways in India without a guarantee of interest. This result, no doubt, is one for which every one must have been prepared. It has long been known that capital could not be obtained in India to any

useful extent, and now it has become manifest that it cannot be raised in England for such purposes as these without the security of a guaranteed return of income. The Government adopted a very proper and natural course when it endeavoured to induce capitalists to come forward to undertake Railways in India without this description of assistance from the State, and the failure to accomplish this end is much to be regretted. But such a result having been conclusively established, the Government should, I think, now review its position in relation to this very important and very costly class of public works.

"So long as it was hoped that Companies might come forward to undertake Railways in India under such terms as had before been proposed, that is, with the aid of a moderate fixed payment for a term of years, it did not seem important for the Government to take any special steps in the direction of attempting to settle beforehand what lines should be taken up. It was reasonable to wait until some body of capitalists voluntarily proposed to accept the risk of carrying out any selected line of Railway. It did not appear likely that the payment of the subsidy which had been approved by the Secretary of State would lead to any serious burden being put on the finances, or that any great or sudden change would be occasioned in such a manner. In truth, the subsidy has not been taken advantage of at all, excepting by the Indian Branch Company, and then it entirely failed to induce capitalists to provide money, and has, as we now know, been finally given up.

"But the position in relation to Railway construction will be entirely changed now that the system of guarantee has been again adopted, and that it has been practically admitted that the Government must, for the future, give assistance in this form to ensure the construction of Railways in India. There can be no doubt that, under a guarantee of interest, the Government may without difficulty at once secure the formation of a Company to carry out any line of Railway which it desires to see executed. This being the case, there is no reason whatever why the Government should henceforth be influenced by anything but its own conclusions as to what is desirable in relation to Railway construction. The entire position is in the hands of the Government, and it seems to me most unadvisable to allow the advantages which it presents to be lost. It is very certain that the knowledge that the Government has re-opened the system of guarantee will bring up many speculative projectors who will take up schemes for which they will without difficulty obtain the support of colourable authority at least. Such schemes they will press on the Government under such patronage as they may secure, and unless preparation is made beforehand to meet such projectors and their schemes, it is exceedingly probable that the Government may find itself involved in undertakings which have been forced upon it in a way which it may see cause to regret hereafter.

"Having regard to the necessary limit to the sum that will from year to year be available from the Indian revenues for the purpose of paying guaranteed interest, and also to the like limit which there will be to obtaining capital from the English money market, it is certain that any extension of Railways in India must be practically restricted to a limited number of miles in any one year. It will therefore follow that every pledge of the Government to assist any particular project will, *pro tanto*, prevent the prosecution of all other projects, at all events for a time. Hence it is obviously important for the Government to do what is in its power, to make a selection of those lines which shall be first constructed, and so far as it can to regulate the order and manner in which all future extensions of Railways shall take place.

"Although I have already on other occasions expressed my opinion that any considerable extension of Railways at the present time had not commended itself to me because I saw much difficulty in providing the necessary funds, yet it is no doubt essentially a question of finance at bottom. And if, on a further examination, it were shown that the burden on the finances would not be increased in an objectionable manner by any moderate yearly extension of Railways, the question is one which is well worthy of consideration.

"On these grounds, therefore, I am of opinion that it is expedient for the Government of India at the present time to take a comprehensive view of the probable future requirements of the whole of India in respect to Railways, in a manner somewhat similar to that in which Lord Dalhousie reviewed the question when the introduction of railways was first discussed. I see no reason for doubting that a very useful, and comparatively very correct, estimate may now be made of the essential Railway wants of India for the next 20 or 30 years, and that a scheme of a system of railways could be prepared which would indicate with tolerable precision the best method of meeting all these wants.

"One consideration of much importance in relation to these works is, the degree to which the several Companies should be allowed to extend their undertakings, and the limits that should be placed to the districts into which their lines should be permitted to run.

"The danger of allowing too great a development to any one Company has formed a topic of discussion for the Government of India in former years in relation to some of the existing Railways, and the question is one which should not be lost sight of in such a review of Railway extension as I have suggested. An overgrown Company is likely to be a source of embarrassment, or even danger, to the Government, from the power of personal influence which it must possess, while its efficiency for the essential purposes for which it was created is almost certain to be diminished.

"At the same time, I think that a financial review should be made of the actual working of the guarantee system to the present time, with the intention of placing before the Government its results, having reference to the actual money payments it has involved, and the probable course of such payments in the future, if a certain moderate annual extension

of

of Railway construction were allowed to go on. In the present year, I observe that, although the whole railway capital paid up by the Companies is rather above 68 millions, yet the net payment of interest will amount only to about 580,000 *l.*, which is hardly 1 per cent. on the whole amount under guarantee. Most of the Railways are steadily increasing their income, and a permanent diminution of the interest charge is going on.

"In connection with this part of the subject, it will be well to consider carefully a proposal made by his Excellency Sir William Mansfield, to the effect that some fixed sum should be appropriated by the Government of India from the annual revenues, within which the payment of guaranteed interest should be limited, an extension of the Capital only being allowed as the increase of the net Railway receipts reduced the actual charge on the Government for guaranteed interest. If it were found practicable to make such an arrangement, it would appear to be unobjectionable on general grounds.

* * * * * * *

"I do not, of course, suppose that any scheme of Railways, or plan of operations which may now be prepared in the sort of way I have spoken of, is to be looked upon as anything more than a sketch to assist future progress. But from such a general review of the whole subject, the Government will certainly derive much advantage, even if it only serves to place before us, in a somewhat more definite manner than has hitherto been done, the real magnitude of the task of fully supplying India with Railways. I shall in the sequel refer to some other considerations bearing on the general character of these great undertakings, which I cannot help thinking have till now hardly received the attention which they deserve from us."

RESOLUTION.

With a view to giving effect to the desire expressed by his Excellency the Governor General, that a comprehensive review should be taken at the present time of the requirements of India as regards Railway extension, the Government of India thinks that it will be desirable to consult all Local Governments, and to request them to forward to this department, at their early convenience, a statement of their opinions on the whole subject.

2. The Governor General in Council would wish each Local Government to consider what lines of railway it would regard as desirable to construct, should the necessary funds be available, either within its own territories, or to communicate with the most important points in the territories adjacent, whether British or foreign. It will, of course, be understood that in making any recommendations on such a subject, regard must be had to the great cost of these works, and that only a few main lines of chief importance should be indicated, or the object which it is desired to attain will be frustrated. It is easy to say in a general way that Railways in all possible directions are desirable, and in a certain sense this is true. But the manifest intention of his Excellency the Viceroy is that such a review of all possible lines should be taken as will enable the Government of India and Secretary of State to make a selection of those particular lines which are most needed, and which most commend themselves for early construction.

3. In making a choice of lines of Railway, it would appear necessary to direct the first attention to the prospects of their proving remunerative at an early period. The progress of railway construction must obviously depend on the available means being forthcoming to meet the guarantee of interest, or other aid which, under all circumstances, it may be considered essential for the State to give. Every mile of Railway which does not repay the guarantee forms an absolute obstacle to the extension of like works elsewhere. A burden is placed on the finances which, so long as it continues, completely cuts off the power of the Government to deal with so much of its revenue as is thus hypothecated to meet the interest charge. It is to be remembered that the resources of the State are strictly limited, and that the desire of the Government of India to advance improvement is not at all to be measured by its power to do so.

4. In order to provide a reliable standard of comparison in estimating the probable prospects of a Railway, it will be useful to supply for any line recommended, a statement of the average population and revenue per square mile of the portion of each district traversed by it. The population of all important towns on the line should be stated as nearly as possible; also, in case of Seaports, the impost and exports both in tonnage and value.

5. So far as it is possible, on these data, and by the help of the actual receipts on neighbouring lines in existence, an estimate should be formed of the probable income from the proposed Railways. Such an estimate will commonly be more trustworthy than one based on any attempt to reckon the actual traffic. It will be desirable to make such an estimate show the probable return on first opening, and the gradual growth of the income. These data it should be possible to estimate with some approach to truth from the data given by existing lines of Railway.

6. At the same time, a general appreciation should be made of the engineering difficulties or facilities of construction, and, if possible, a sum should be named as likely to represent what a line of a certain character would cost.

7. The importance of the effect of the first cost of a Railway on its ultimate financial success cannot be overstated. Whether as regards the question of obtaining the funds in the first instance, or covering the necessary interest afterwards, it may safely be said that

the first consideration in Railway construction in India should be the most strict limitation of cost which is consistent with a permanent structure, this, of course, being an essential condition. Having regard to this point, the Governor General in Council would not exclude from consideration, under special circumstances, the expediency of constructing Railways of a narrower gauge than the standard 5 feet 6 inches. Where a Railway would be forbidden by reason of its expense, if made of the full gauge, if adopting a narrower gauge it could be shown to be feasible, it might become a question whether the latter, with all its disadvantages, should not be accepted.

8. Another matter of much practical moment is the proper distribution of any projected lines of Railway among the Companies to be entrusted with their construction. It is objectionable, both on the ground of proper and economical supervision, to have a Railway undertaking either very large or very small. A proper medium should be arrived at, and probably a length of not less than 400 or 500 miles, and not more than double that distance, should be found commonly suitable.

9. It will also be expedient to indicate the order in which such recommended lines should be taken up, and the probable length which might be opened yearly, or the number of years necessary to complete each; attention being paid to the adoption of such a system of extension as will bring each portion of a new Railway, as it is opened, into useful connexion with the already existing lines. In connexion with this point, it should be remembered that the probable amount of English Capital available for such works is limited, and that it is perhaps not likely that a larger sum than seven or eight millions yearly could, under any circumstances, be expected to be forthcoming for Indian Railways.

10. The Government of India will be glad to receive from each Local Government and administration an expression of its views on the general question that has been stated, as well as on any of the points above referred to, so far as they shall affect any conclusions adopted.

ORDER.

Ordered that the foregoing resolution be forwarded to the Local Governments and administrations noted in the margin, for information and guidance.

Government of Madras.
" " Bombay.
" " Bengal.
" " N. W. P.
" " Punjab.
Chief Commissioner, Oudh.
Chief Commissioner, Central Provinces.
Commissioner, Mysore.
Resident, Hydrabad.
Agent, Governor General, Rajpootana.
" " Central India.

(signed) Colonel, R. A.,
Secretary to the Government of India.

(Railway, No. 3.)

To His Excellency The Right Honourable The Governor General of India in Council.

India Office,
London, 16th January, 1868.

Sir,

Para. 1. Numerous communications have within the last twelvemonth been received from your Excellency's Government, and also from the Governments of Madras and Bombay, in which are discussed the merits of several projects for railway extension in different parts of India. Among them I may refer particularly to the Despatches noted in the margin, relative to proposed lines of Railway towards or parallel to the North-West frontier, through Rajpootana, from the existing Bengal railways to Darjeeling or Assam,—from Hooblee to Carwar, and to new branches in connection with the Madras or Great Southern of India Railways.

From Government of India:
No. 111, dated 22nd December 1866.
" 16, " 6th February, 1867.
" 38, " 3rd April, 1867.
" 45, " 16th " "
" 94, " 18th September 1867.

From Government of Madras:
No. 1, dated 9th February 1867.
" 4, " 13th " "
" 6, " 22nd May 1867.

From Government of Bombay:
No. 7, dated 27th April 1867.

2. Each of these schemes has, in consequence, engaged my attention in Council, but the fact of so many projects being brought forward simultaneously seems to show that the present is a fitting time for taking a comprehensive view of our railway policy, past and future, for reviewing what has been already done, and for endeavouring to establish principles on which we may proceed henceforward.

3. Past results may be briefly summed up, and the present responsibilities of Government briefly described, as follows: Nine guaranteed Railway Companies have opened for traffic 3,600 miles, and are engaged in the construction of about

about 2,000 more. The amount of capital which these Companies have been empowered to raise may be stated, in round numbers, at 83 millions, and the amount actually raised at 74 millions. The aggregate amount (inclusive of what has been already raised) required for the completion of their undertakings, either as single lines or without other doublings than those already sanctioned, may be estimated at 90 millions, which sum must, however, be raised to 100 millions at least, if additional doublings, which will certainly be required at no distant period, be taken into account. The annual net expenditure of the State in advances of guaranteed interest was, when at its highest in 1863-64, 1,669,283*l.* It has since been reduced by payments into the Government Treasury of net Railway earnings, and, last year, was little more than 700,000*l.* In all probability, the increase of net earnings might prevent Government advances on account of guaranteed interest from rising above the last-mentioned sum, if no additional Capital were to be guaranteed beyond what may be necessary for the completion of undertakings already sanctioned. The present debt of the several railways to Government on this account is about 12 millions.

4. In proceeding, however, to inquire into the expediency of further extensions, one fact to be noticed is that, as the most important lines have already been selected, results as favourable as those which are in course of realization from some of these can scarcely be expected from lines hereafter to be made.

5. Nevertheless, though equal profits may not be attainable from future lines, this does not constitute an unanswerable objection to further extension; for lines which in themselves are perhaps unremunerative may be of the highest political and social, and, indirectly, even of great commercial value. Thus a line which connects important strategical points may produce an economy of military expenditure far more than sufficient to cover any loss which may arise upon the working of the line itself. Again, a line which facilitates the carriage of food in districts where harvests are uncertain may be of the highest value, though not directly remunerative. The same may be said of lines which facilitate the intercourse of remote and backward districts with the more advanced, or which enable the people to come more easily and frequently to markets, to courts of justice, and so forth, or enable magistrates to visit their districts with greater convenience. These are only a few of the many indirect advantages attending the extension of Railways, which justify us in laying down the principle that direct commercial success is not to be regarded as the one single test of their value.

6. These considerations, however, strengthen the conclusion to which practical experience leads us, that Railways are not likely to be made in India without the aid of Government. The capital which has hitherto been invested in them has almost entirely come from England. It has gone to make, probably, the most profitable lines; and if even for these it could not be obtained without a guarantee, it is unreasonable to suppose that it would be forthcoming without similar support for the less profitable. The motives which might possibly induce intelligent and public spirited Natives to promote the construction of unremunerative lines, for the sake of improving the general condition of the country, would have no weight with English capitalists. But such motives are precisely those which ought most to influence a Government, having a due regard to the general welfare of its subjects.

7. In order, however, that Government may be prepared to take upon itself the pecuniary risks of railway extension, it becomes us to take a general survey of the whole of India, for the purpose of deciding upon the lines which are most to be desired, and of considering in what order, in what mode, and at what rate of speed, they should be taken up.

8. These several points, among others connected with the general question, have accordingly been under my consideration in Council, and I propose now to place you in possession of the views which I have in consequence been led to form, and in maturing which I am desirous of having the additional assistance of your Excellency's Government.

9. It seems desirable that projects for future Railways should be arranged in two separate classes, as commercial or political. It may often be difficult to distinguish

distinguish clearly between the two, but this need not be attempted. It will be sufficient that some should be recognised as being recommended chiefly by commercial, and others chiefly by political, utility.

10. Of the political lines the most important are undoubtedly those to the north-west frontier, upon which I propose to address you in a separate Despatch.

11. Of the commercial lines, those should, in my opinion, be preferred which will open up the districts whose natural resources are at once largest and least developed, and which are least aided by existing lines. Competing lines ought not to be promoted, but care should be taken to scrutinize the grounds upon which any line is said to be in competition in another. As regards feeders, it is to be hoped that the several Companies will not refuse to undertake such as both they and the Government may concur in regarding as desirable. The question of doubling existing lines may properly be left to the Companies.

12. In the choice of new lines of either description I am desirous that due weight should be given to the claims of the different Presidencies. The funds which are to support them will be drawn from the whole country, and it is desirable that the whole country should participate in the benefit derived from them. In some districts, however, improved roads would answer sufficiently all the purposes of a Railway, and it is needless to say that when this is the case the former should be preferred.

13. We have next to consider the best means of raising the requisite funds for the construction of such future Railways as may be decided upon.

14. You have recently come to the conclusion that the guarantee system should, so far as regards irrigation works, be superseded by a system of direct Government agency. The reasons for this decision, however, are not applicable to the case of railways, as the question of possible interference with the land revenue does not here arise; at the same time there are other considerations which ought not to be lost sight of. The main objection to guarantees in connection with Railways is that they tend to weaken the ordinary motives to efficient management and superintendence, and recent disclosures as to the state of the works on the Great Indian Peninsula line afford new proof that there is much room for apprehension on this score. I am therefore anxious to know whether any or what additional precautions can, in your opinion, advisably be taken to secure good workmanship under the guarantee system, which, in spite of its obvious defects in certain particulars, I am disposed to regard as, upon the whole, the one best adapted for the extension of one class of Railways, viz., the commercial.

15. For the political class, I am inclined to think that direct Government agency might be preferable. It must be borne in mind that the guarantee system is not a system admitting of indefinite extension. The number of persons who are willing to invest in guaranteed Railways is necessarily limited, and the market may easily be glutted with this description of securities if they be too freely offered. The guarantee system seems to me to be properly applicable only when there is a reasonable hope that the profits of the undertaking will, in a moderate time, rise above the amount which the guarantee covers. If a line is to be made for Government purposes at the risk of probable commercial loss, it will be best that the Government itself should make it, and should not weigh down the market for Railway securities by the introduction of a stock which is never likely to rise to a premium.

16. With respect next to the rate of progress of future extensions I will confine myself to observing that, as the construction of Railways resolves itself into a question of charging the revenues and the credit of India, it must be considered with reference to the general financial position of the Government and the extent of its actual or contemplated expenditure on public works. It would be inconvenient and inappropriate to name a particular capital sum as the limit of what should be invested in Railway enterprise; but it might be possible to ascertain a sum which should be taken as the limit of the annual charge which should be borne on Railway account, and thus to establish a system under which, in proportion as the revenues of India were relieved of the charge of old lines

lines by their becoming self-supporting, new ones might be taken up in their place. I would leave to your Government to propose what the exact limit in question should be.

17. With respect to the order in which different lines should be taken up, I may again distinguish between political and commercial. With regard to the former, I shall state my views in the separate Despatch to which I have already alluded. With regard to the latter, I would request you, after passing in review the several applications and projects which have, from time to time, been brought before you, to favour me with your estimate of their comparative urgency.

I have, &c.
(signed) *Stafford H. Northcote.*

(Railway, No. 5.)

To His Excellency the Right Honourable the Governor General of India in Council.

India Office, London,
24 January 1868.

Sir,

Para. 1. In my Despatch of the 16th instant, No. 3, on the general subject of Railway extension, I have mentioned that I should address you separately with regard to those lines which may be classified as "political."

2. With respect to these, I may observe that the considerations which should govern the selection of lines constructed for political or military objects appear to me to be of a wholly distinct character from those which should guide us when we are dealing with purely commercial undertakings. At the same time, it is, of course, desirable to unite, so far as we can, commercial with political advantages.

3. In the great trunk lines from Bombay to Madras, from Bombay to Calcutta, and from Calcutta to Lahore, together with the one from Bombay to Nagpore, we already possess a system of communications which must at once add materially to the strength of our position in India, and greatly conduce to economy in the disposal of our military force. They enable us to make a smaller number of troops suffice for the defence of a large extent of country, and permit of our stationing the troops at the healthiest and most eligible spots, and of our providing them there with suitable barrack accommodation, which we could hardly do if we had not the means of rapidly moving them to any point where their services may be required.

4. Such advantages as these would be cheaply purchased, even were the Railway system more costly to the Government than it is. If the question were one capable of being determined by figures, I have little doubt that the difference between the cost of the army at its present strength, and of that which, but for recently increased facilities of communication, it would be necessary to maintain, would be found to be more than sufficient to cover our average annual advances of guaranteed interest.

5. For some time past, the possibility of strengthening our north-west frontier, by means of additional lines of Railway, has engaged much of the attention of your Government, and of my predecessors and myself. With this view three lines have been suggested, each calculated to answer some separate purpose special to itself, but all designed also to conduce by different ways to the same great end of strengthening our frontier. Thus the Rajpootana line, besides traversing territories hitherto almost unopened, would abridge the distance from Bombay to Lahore, by furnishing a shorter route than that through Jubbulpore and Allahabad; the Indus Valley line, by providing the intermediate link between two isolated terminal sections, would give a new approach to Lahore from the sea. The Lahore and Peshawur line would place our extreme outposts in more rapid communication with their immediate base.

6. These three plans have now been long under discussion, but, beyond the arrangements ordered for obtaining surveys, no progress has been made with any,

any, and, in the meantime, the means of communication between Lahore and Peshawur, which had been resolved upon before a Railway in that direction was thought of, are left in an unfinished state. There is a military road, constructed at the expense of more than a million sterling, which, except in one respect, is understood to be excellent, but which loses half its value for want of the bridges which remain unbuilt, because, until the Railway question is settled, it is impossible to fix on the best situations for them. Steps should at once be taken towards remedying this grave defect. It would be better to have a communication, even of an inferior kind, completed, than indefinitely to suspend operations, while discussing what kind would be the best.

7. The conclusion to which I have myself been led is that, on the one hand the advantages to be derived from the construction of a first-class Railway, the whole way from Lahore to Peshawur, would not be commensurate with the cost of such a work; and that, on the other, a second-class line (such as has been proposed by Colonel Strachey and others), although much less costly, would fail to secure any very important advantage. It is possible, however, that a first-class line from Lahore, either by way of the Salt Range to Rawul Pindee, or to Jhelum, with a branch to the Salt Range, might pay commercially; and to the construction of one or other of these lines I am prepared, if you consider the measure advisable, to consent. In that case I should wish that arrangements should be made simultaneously for the construction of all necessary bridges on the present line of road beyond Jhelum or Rawul Pindee, according as one or the other should be chosen as the terminus. In the other case, I should wish no time to be lost in constructing bridges along the whole line of the present road from Lahore to Peshawur. The bridges should be so planned as to be available, if required, for the purposes of a railway hereafter, and I should be prepared, with your concurrence, to sanction the laying down of light rails, suitable for animal traffic, along the whole or part of the road, as soon as the bridges were finished.

8. I defer for the present any observations upon the respective merits of the other two lines which I have mentioned, but I trust your Government will continue to direct your attention to them.

I have, &c.
(signed) *Stafford H. Northcote.*

(No. 41—Railway.)

Government of India.—Public Works Department.—Railway.

To the Right Honourable the Secretary of State for India.

Sir, Fort William, 11 March 1868.

We have the honour to acknowledge the receipt of your Despatch (No. 3), dated 16th January 1868, and to refer you to our letter (No. 125) of the 3rd December last, from the papers accompanying which it will be seen that your wishes in regard to the measures to be taken towards the extension of Railways in India have for the most part been anticipated.

2. It will be perceived that we have called for reports from the Local Governments, pending receipt of which we should be glad to be placed in possession of your views upon the points discussed in our letter above quoted and its accompanying Minutes. By the time your instructions reach us, it is hoped that we shall be in a position to report fully as to the projects to be recommended for execution.

We have, &c.
(signed) *John Lawrence.*
W. R. Mansfield.
G. N. Taylor.
W. N. Massey.
H. M. Durand.
H. S. Maine.
John Strachey.

(Railway, No. 44.)

To His Excellency the Right Honourable the Governor General of India in Council.

Sir, India Office, London, 11 June 1868.

Para. 1. I HAVE received your Excellency's Despatch, No. 41, of 11th March last, acknowledging mine, on the subject of Railway extension, No. 3, of 16th January previous. I am anxious that your promised report as to the Railway projects to be recommended for execution should be prepared with as little delay as possible after receipt by you of the particulars bearing on the subject, which the local Governments have been called upon to furnish.

2. Upon the points discussed in your Despatch, No. 125, of 3rd December last, to which you invite renewed attention, I may remark generally, that the terms embodied in the contract entered into with the Oude and Rohilkund Railway Company were adopted, after careful consideration, as being well suited to existing circumstances. I am aware that, in some respects, they are more liberal than those granted to the earlier Companies, but they are, I believe, not more liberal than, in the present state of the money market and of public feeling with regard to Railway undertakings, are requisite to induce Capitalists to engage in new projects for the construction of Railways in India.

I have, &c.
(signed) *Stafford H. Northcote.*

(No. 122—Railway.)

Government of India.—Public Works Department.—Railway.

To the Right Honourable the Secretary of State for India.

Sir, Simla, 15 August 1868.

WE have the honour to acknowledge the receipt of your Despatch, No. 44, Railway, dated 11th June 1868, requesting early transmission of the report on the question of Railway extension in India, and stating, with reference to our Despatch, No. 125, of the 3rd December last, that the terms embodied in the contract with the Oudh and Rohilkund Railway Company were adopted by you after careful consideration.

2. In regard to the general review, we beg to state that replies to our circular of 3rd December last have been received from certain local Governments,* and are still due from certain others;† preparations are being made for the early review of all the replies as soon as received, and there will be no more delay in submitting the results for the orders of Her Majesty's Government than the necessity for careful consideration may call for.

* Bombay. Bengal. Oudh. Central Provinces. Hyderabad. Rajpootana. Central India. British Burmah. Mysore.

† Madras. N. W. Provinces. Punjab.

3. Meanwhile we would express a hope that the consideration of the questions submitted with our Despatch, No. 125, of 1867, may not be laid aside. The points raised by us were not submitted as reflecting upon past action, nor as mere criticisms of the Oudh contract, but were meant to bring forward important matters in connection with *future* Railway undertakings, and to endeavour to remove apprehended inconvenience from past transactions.

4. We hope that the matter will be looked at in a broad light, and not merely in a point of view relating to the money market. Such a point of view is, no doubt, important; but at present its importance is, in some sense, of a minor order. There is no doubt that the Government could raise money for Railway undertakings, and make all the other necessary arrangements without the intervention of Companies at all. And we are therefore of opinion that there is no necessity for giving way to such bodies on points on which there are grounds for the Government to insist.

5. All our experience points to the conclusion that, in matters of finance, the Government should retain a larger and stricter control over the Railway Companies than is easily arranged for under the present contracts. The shareholders in the guaranteed Companies should have full confidence in the safety of their 5 per cent., and such additional profit as may be earned; but there will be no disadvantage to them in the control of expenditure which the Government would desire to exercise.

6. What we chiefly desire, however, is that the arrangements with capitalists should not be such as to weaken the authority of the Governor General in Council, or interfere with the measures he may desire to see carried out for the benefit of our Native subjects. It was on these points, even more than on matters of finance, that we desired to insist. And we would express a hope that you will give them your early and earnest attention, so that such matters may not interfere to delay action or impair the solidity of the arrangements to be made, when the new schemes are brought forward under the coming review.

7. We would also draw attention to the circumstance that, while the Railway contracts have hitherto been made by Her Majesty's Government without consulting the Government of India, the practical working of them is carried out under our immediate supervision. We have thus obtained a complete insight into the deficiencies of the existing arrangements; and it is, and has been, our desire to bring before Her Majesty's Government the matters which seem to call for special consideration in making any new contracts. We hope that if you are not prepared to assent to the proposals which have been made in the Minute of the Governor General, and which have been generally concurred in by the Members of Council, you will be so good as to favour us with your objections, in order that we may have an opportunity of endeavouring to remove them.

We have, &c.
(signed) *John Lawrence.*
W. R. Mansfield.
G. N. Taylor.
H. M. Durand.
H. S. Maine.
John Strachey.
Richard Temple.

(Railway, No. 90.)

To His Excellency the Right Honourable the Governor General of India in Council.

India Office, London,
24 November 1868.

Sir,

Para. 1. I HAVE considered in Council your Despatch of the 15th August last, No. 122, in reply to mine, No. 44, of the 11th June 1868, regarding the extension of Railways in India, and the terms of the contract with the Oude and Rohilcund Railway Company.

2. I am glad to learn from this Despatch that I may soon expect to receive your Excellency's views upon the important question of Railway extension, submitted for your consideration with my Despatches of 16th and 24th January last, Nos. 3 and 5.

3. You express a hope that the consideration of the questions submitted with your Despatch, No. 125, of 3rd December 1867, may not be laid aside, as if referring only to the Oude Contract, but may be looked at in a broad light in connexion with future similar undertakings; and you desire that, if I am unable to assent to the proposals contained in the Minute of the Governor General, dated 16th August 1867, I will state my objections, in order that you may have an opportunity of endeavouring to remove them.

4. I stated to your Excellency in my Despatch, No. 44, of 11th June last, that as regarded the points discussed in your Despatch of 3rd December, No. 125, bearing

bearing upon the actual contract with the Oude and Rohilcund Railway Company, I had already very carefully considered the terms granted to that Company, and that I was satisfied they were not more liberal than, in the actual state of the money market, and public feeling with regard to Railway undertakings, were requisite to induce capitalists to engage in new Railway projects in India.

5. With reference to the observations in the 37th and subsequent paragraphs of your Excellency's Minute, I may observe, that it is not my intention to relinquish the power of disallowing expenditure improperly incurred; and in the 11th Clause of the Rohilcund Contract it is provided that the expenditure "shall be allowed, so far only as the same shall from time to time have been sanctioned and approved by the Secretary of State in Council." At the same time, I must state that it would only be in an extreme case that I should consider it advisable to disallow capital which had been expended on the works of the Railway, even although it might be disputed whether or not the formal sanction of Government had been accorded to such expenditure.

6. That actual case having been disposed of, and there being at present no early prospect of the appearance of a new company requiring a Railway contract for India, it might, perhaps, be premature to discuss objections to possible contracts in future, which, when they occur, may occur under altered circumstances. But, in deference to the wish expressed by your Excellency, I will state as briefly as possible, why I do not, as at present advised, agree in all the proposals contained in the Governor General's Minute of the 16th August above quoted.

7. These proposals are in number ten, and they are in substance as follows:—

(I.) That no Company should be allowed the opportunity of very large development, both because a Company too largely developed may be inconvenient and even dangerous to the Government, and because it will at the same time be proportionately inefficient.

(II.) That a fixed sum should be stated as a limit to expenditure on guaranteed interest; *extension* of capital being only allowed as net receipts reduce the actual charge.

(III.) That the Government when considering fresh estimates of construction expenditure, should fix an average mileage rate of cost, and settle that it will on no account guarantee interest on any sum expended beyond that rate of cost.

(IV.) That the Companies and their servants should be made to look upon themselves as the agents of Government for the purpose of constructing Railways according to its wishes, and that they must accept the understanding and declaration that no interest will be guaranteed on capital laid out "under the virtual dictation of Companies and their Engineers."

(V.) That Government be empowered to dismiss or suspend all Railway servants at its discretion.

(VI.) That the land should be granted not for 999 years, as to the Oude Company, but for 99 years, and that the right of entry, after that period, should be absolutely secured to Government.

(VII.) That as it is politically dangerous, and may at any time be very embarrassing to Government, to allow very large capitals to be invested in Indian guaranteed Railways, the Government should by degrees obtain possession of all such works, either by special contract or by actual purchase, which, it is suggested, might be provided for by a sinking fund.

(VIII.) Clause 25 of the Oude Contract is said to be ambiguous, as leaving it uncertain whether the words, "the capital so refunded," include all the money at any time paid back to the Company from the capital lodged with the Government. This should be amended in any new contract, and

the intention of Government explicitly declared not to allow interest on capital expended without authority.

(IX.) There is an ambiguity in Clause 18 as to the free haulage of post office special carriage. The right of Government to this haulage should be distinctly affirmed. So also as to the power of Government to order special trains, and as to the transport of troops, police, and Government stores and cattle.

(X.) The manner of repayment of advances of guaranteed interest is objected to. Instead of dividing the surplus earnings between Government and the Companies till the debt is paid, it is suggested that the whole surplus should be taken till the debt is paid, or, if this be not adopted, then that the half surplus be taken by the Government absolutely and permanently; or, lastly, and preferably, that both plans should be adopted, Government taking the whole surplus till the debt is paid, and half the surplus ever afterwards.

8. These proposals are introduced by the Governor General, with the remark, that, it being now admitted that the guarantee system must in future be adopted in order to ensure the construction of Railways in India, and there being no doubt that, under this system, the Government may, without difficulty, at once secure the formation of a Company to carry out any line it desires, there is no reason whatever why the Government should henceforth consult anything but its own will as to what is desirable in relation to Railway construction, "the entire position being in the hands of the Government." And this observation is repeated in another form in your Excellency's Despatch of the 15th August last, to the effect that the subject should not be considered "merely in a point of view relating to the money market," for as the Government could undoubtedly raise the money and make the lines itself, without any Company at all, there is no necessity for giving way to the views of any Company on points on which the Government deems it proper to enforce its will.

9. It is upon my inability to concur in these remarks that my objections to most of the Governor General's propositions rest.

10. In my Despatch, No. 3, of the 16th January 1868, I distinguished, as to future Railway projects, between commercial lines and political lines, and while I expressed a preference for direct Government agency in the latter description of Railways, I intimated my disposition to regard the guarantee system as that best adapted to the former, or commercial class of lines. And, as to this distinction I do not understand your Excellency to differ from me in opinion. But it is essential, in working out the guarantee system, that the confidence of the investing public, or, in other words, of the "money market," should be secured, and that due regard should be paid to the constitution of Joint Stock Companies as regulated by Parliament, and if a certain class of Railways in India is to be constructed by the agency of guaranteed Companies, such terms must of necessity be given as will attract them, and not such as must repel them from entering into contract.

11. Now it appears to me that no Company is likely to assent to a contract by which they would be absolutely debarred from all power of future extension,* nor do I think that the Government should so shut itself out from the power of allowing reasonable extensions as occasions arise.

* *See* Governor General's 1st proposition.

12. Further, I should expect no Company to agree to a contract which, against all previous practical experience, should attempt rigidly and peremptorily to limit the amount of construction expenditure, and, with it, the extent of the guarantee of interest;† and, moreover, such a mode of procedure would have the tendency to prevent sufficient and necessary expenditure, and might lead to the use of inferior materials, and to what is professionally called "scamping" work.

† 2nd, 3rd, and 8th propositions.

13. So, also, I feel assured that no body of shareholders, or their Directors, are ever likely to consent to look upon themselves and their officers as mere agents and servants of the Government, imperatively bound by its behests, and liable, in the case of officers of the Company, to suspension and removal at its pleasure;‡ nor do I believe that any such reputable Engineers as it would be desirable

‡ 4th and 5th propositions.

desirable to see employed would take service with a Company under such conditions.

14. The question between a grant for 99 years and one for 999 years has been very carefully considered,* and the latter term was adopted in the Oude contract, because I was satisfied, after inquiry, that the former limit, coupled with an absolute power of re-entry on the part of Government, would not be accepted by capitalists, unless upon terms more disadvantageous to the Government than would be balanced by any benefit derivable from insisting upon it. I have no reason to believe that this argument for the longer term would not prevail in the consideration of any future contract with a guaranteed Railway Company, as between a term of 999 years and the old term of 99 years, with power of notice in the hands of the Companies up to the 98½ year, there is, as I need hardly observe to you, no practical difference.

* 6th proposition.

15. If it would be politically dangerous or embarrassing to Government to have very large English capital invested in Indian Railways, because of the responsibility for interest, that danger or inconvenience would in no degree, I think, be removed by the adoption of the GovernorGeneral's proposal to buy the Railways.† For, however or whenever they might be bought, it would still be with borrowed money, so that the amount of English capital jeopardized in India would still remain the same, though its form would be different; neither could it possibly be advisable or economical to set aside, *out of borrowed money*, a sinking fund for the purpose.

† 7th proposition.

16. The suggestion as to haulage of post office special carriages, and the ordering of special trains, and the transport of troops, police, Government stores, and cattle,‡ will assuredly meet with due consideration. They must all depend on mutual bargain or arrangement, pending the execution of a contract. But I am not prepared to admit that, as regards these particulars, there is any important defect in the contract with the Oude and Rohilcund Company.

‡ 9th proposition.

17. I am very distinctly of opinion that it would not be practicable to make any change in the manner of dealing with a surplus revenue over the guaranteed interest.§ I believe that the prospect and even the possibility of such a surplus has real importance in determining the value of Indian Railway shares; and that if, in any future contract, this prospect were interferred with, or cut off in the manner suggested, much higher terms would be necessary to ensure success. I have elsewhere observed (Despatch, 24th January 1868, No. 5), that the political and military advantages of present commercial Railways to the Government would be cheaply purchased, even were the Railway system more costly to the Government than it is; and looking forward to similar advantages hereafter, from the construction of future Railways of that character, I am not disposed to hinder their construction by the demand of too onerous terms, or to insist too strongly upon the pecuniary sacrifices involved in their completion.

§ 10th proposition

I have, &c.
(signed) *Stafford H. Northcote.*

EAST INDIA (RAILWAYS).

COPY or EXTRACTS of CORRESPONDENCE on the subject of the EXTENSION of RAILWAYS in *India*, and their future Construction and Management, previous to that presented to the House of Commons on 23 July 1869.

(*Sir Stafford Northcote.*)

Ordered, by The House of Commons, *to be Printed,*
9 *August* 1869.

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412.

Under 16 *oz.*

COPIES of DESPATCH from the Government of *India*, and MINUTE by the late Governor General, and DESPATCH to the Government of *India*, No. 42, of 15 July 1869, on the subject of RAILWAY EXTENSION in *India*.

(*Confidential.*)

FROM THE GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.—RAILWAY.

(No. 24.)

To His Grace the Right Honourable the Duke of *Argyll*, K.T., Secretary of State for India.

My Lord Duke, Fort William, 11 March 1869.

WE are at length in a position to reply to the Despatches of Sir Stafford Northcote, relative to the extension of railways in India.* The necessary references to many distant authorities, the compilation and arrangement of the voluminous papers requiring our attention, and the consideration of these with the care due to the importance of the subject, have combined to cause some unavoidable delay, but we hope that the whole question may now be placed before Her Majesty's Government in a form that will admit of an early settlement of all the points on which the progress of railway construction in India mainly depends.

* Secretary of State's Despatch, No. 3, dated 16 Jan. 1868.
" " " No. 5, dated 24 Jan. 1868.
" " " No. 90, dated 24 Nov. 1868.

2. Among the papers which we do ourselves the honour to transmit to your Grace, we desire to direct special attention to the important minute of the late Governor General Sir John Lawrence, which, apart from the special authority attaching to it, commends itself generally to our judgment, and, with some few exceptions which we shall explain more in detail, has received our unanimous approval.

3. The matters to be discussed in connection with this subject involve considerations so large and so varied, that we have thought it more convenient to deal with them in separate Despatches. We accordingly propose to divide what we have to submit for your Grace's consideration under three heads; first, the agency by which Railways should in future be constructed; second, the lines to be next undertaken; and third, the considerations which will hereafter call for special attention in respect to the administration or construction of Indian railways.

4. In this Despatch we shall accordingly confine our remarks to the question of the agency by which Indian railways should in future be constructed.

5. On this important question we cannot do better than follow the general scope of Sir John Lawrence's argument. He says:—

"9. On examining the conditions under which the State is now called upon to make good a part of the guaranteed interest on India railway capital, it at once becomes clear that the liability of the Government to a permanent and probably increasing charge on the revenues is much increased by the arrangement under which the Government can derive no profit whatever from the most successful railway, while it bears the entire loss of those which do not pay. There is no set off of profit against loss in the Government share of these transactions. The whole profit goes to the Companies, and the whole loss to the Government. It therefore follows, almost as a positive certainty, that there will be a permanent charge thrown on the Government for guaranteed interest so long as the present system continues.

"10. I am thus led to ask, what are the reasons which should induce the Government to accept the position in which it is placed by the present system of Railway construction, under which the entire risk and actual loss is borne by the State, while the whole of any eventual profit is enjoyed by the Companies to whom the railways are conceded? Can it be really essential for satisfactory progress that such a distribution of the losses and gains should continue, and is there any sufficient grounds of placing the State in so false a financial relation to the constructors of railways as that under which the former must bear all loss, and cannot possibly obtain a set off by any gain? These questions involve the discussion of the character of the agreements which have till now been entered into with Companies for the construction of Railways in India; and the policy under which these works are entrusted to Companies, in preference to being executed by the direct agency of the State.

"11. It is often objected to the prosecution of public works by the Government, that it is not proper for the Government to interfere with private enterprise (which is said to be the proper agency by which works like railways should be carried out), and that the Government should not take advantage of its position to prevent the investment of capital by private persons in large public works. Now, the Government of India has for several years been striving to induce capitalists to undertake the construction of railways in India at their own risk, and on their own responsibility, with a minimum of Government interference. But the attempt has entirely failed, and it has become obvious that no capital can be obtained for such undertakings otherwise than under a guarantee of interest, fully equal to that which the Government would have to pay if it borrowed directly on its own account.

* * * * *

The question now before us is, whether it is reasonable or consistent with the true interests of India to continue a system under which the revenues have to bear the whole risk and loss, and can derive no direct benefit from railway construction, in preference to one under which, with a risk certainly no greater, and probably much reduced, the whole of the direct profits can be added to the public revenues, and made available for reducing taxations or preventing the imposition of new burdens.

* * * * *

"13. * * * The issue thus raised is, whether the agency of the Companies afford any such special public convenience or advantage as to justify the Government in giving them terms which are alike unsatisfactory in a financial and an administrative point of view.

* * * * *

"14. The only possible reply to this question seems to be in the negative. There is every reason to think that the Government would have at least as great facilities in raising directly by ordinary loans all money needed for railway construction, as it has in obtaining subscriptions to the capital of guaranteed Companies, while the former system of obtaining the money would leave the Government entirely unfettered in every subsequent process connected with construction and management of the lines, could cause no larger liability for interest, would almost certainly lead to a reduction of charge in consequence of greater economy, and, lastly, would give to the revenues of India the full advantage of any eventual surplus income, after discharging the interest on the borrowed capital.

"15. The only doubt that could be thrown on the expediency of direct Government action in the construction of railways would be the presumed incapacity of the Government to carry out or manage these undertakings. The Government of India has not yet done it, and therefore it is impossible to adduce direct proof in support of my views. But it seems to me a matter on which there is in truth no room for doubt if it be viewed dispassionately. The history of the actual operations of Railway Companies in India gives illustrations of management as bad and extravagant as anything that the strongest opponent of Government agency could suggest as likely to result from that system. Some of the best constructed and most economical Indian lines have been carried out entirely under departmental management, in a manner which differs in no respect from that commonly followed on Government works. Many of the very largest railway works have also thus been carried out in all parts of India. So far as contractors' agency is desirable, it would be quite as much open to a Government management as to a Company; and the instances of flagrant failures of contractors under the Indian Companies are so notorious as to leave no ground for thinking that, in this respect, the Government could manage worse. With reference to the Indian agency, both of engineers and other officers, it may quite safely be said that the Government, under a reasonable system, could, to say the least of it, secure as great ability with an equal outlay. I have not heard of any useful independent action taken in relation to Indian railways by the London Boards which would be lost under a well-arranged system of Government management. In no single respect can I see that less efficiency is likely to be secured under direct Government control than under Joint Stock Companies having their Boards in London.

* * * * *

"18. * * * The experience of 20 years seems to show sufficiently that there is no reason whatever to expect that the Government can derive any financial advantage from the adoption of the system of guaranteed Companies in supplying the capital required for railways,

railways, unless such Companies actually execute railways and work them very considerably cheaper than the Government could do through its own agency. My own very decided opinion on this point is, that the direct agency of Government would certainly be more economical than that of the Railway Companies, and that there would, in almost every respect, be advantage to the State financially, and, therefore, to the community of India at large, if the Government were to determine to carry out railways hereafter through its own engineers, with money directly borrowed in the market for the purpose.

"19. It is not to be questioned that the existing machinery of the Public Works Department is not suitable for the prosecution of railways on a large scale. But I see no reason for anticipating difficulty in making arrangements which should be perfectly satisfactory and efficacious. I feel confident that there would be complete unanimity on this subject among the Public Works officers of the Government most to be trusted. The Government is already making arrangements for the commencement of the railway towards Peshawur, which, with suitable expansion, would readily suffice to secure the prosecution of like works elsewhere. There are enough of our own officers in the chief provinces of India conversant with railway business, and having local experience, to ensure the satisfactory working of a special staff of railway engineers, &c., under direct Government control. No objection which may be taken to the present Public Works system can properly apply in this discussion, the operations which are now carried out by this Department being of a character requiring a totally different treatment. The outlay on public works in India has avowedly been treated as mainly dependent on the existence of a surplus revenue, which can usefully be applied in this way so long as it exists, but which immediately becomes available for other purposes if pressure arises. It is unreasonable to think, that if the Government deliberately borrowed money specially for railway construction, the works would be stopped on every occasion of temporary financial difficulty, as has been alleged."

6. Sir John Lawrence sums up his conclusions by stating that, in his opinion, railways should, so far as is consistent with actual and implied engagements with existing companies, be carried out by the Government itself. We assent to these views and to the arguments on which they are based. The conclusion opposed to direct Government action in such matters, which has been most commonly adopted till the last few years, was doubtless justified by the circumstances of the time in which it was formed, and we are very far from questioning the great value of the work actually performed by companies in the prosecution of railways in a period of undoubted difficulty. But the whole conditions of the problem have since changed, and in this, as in numerous other matters of great public importance, modified methods of action are necessary to meet the altered circumstances of the time. The position in which both companies and the Government now stand is very different from what it was 15 years ago; and there is strong evidence to indicate that public opinion in England is already much changed on this subject, and is likely before long to be turned in the opposite direction. We shall hope that Her Majesty's Government, on a full consideration of the whole of the arguments that have been now adduced, will concur in the views which we have adopted on this extremely important question.

7. Although we thus desire to substitute, as far as possible, in the future extension of railways in India, the direct action of the State for that of companies, it is yet proper that we should consider the cases in which companies may, from any causes, be again entrusted with the construction of new lines. We have no desire to question the power of companies to execute railways satisfactorily under certain conditions and restrictions, though we consider that the balance of advantages is much in favour of direct Government agency. We shall, therefore, next proceed to state the conclusions to which we have come as to the conditions which it will be necessary to impose on companies in the future, in order duly to protect public interests, and to meet equitable public claims; and as to the circumstances under which their agency should be regarded as certainly unsuitable.

8. The two fundamental objects of any conditions which the Government can desire to impose on a railway company are the limitation of the financial responsibility of the Government, and the protection of the public against the possible evils of an authorised monopoly. The first object mainly affects the operations of construction, and the second those of working.

9. Experience, we believe, has plainly proved that the only serious difficulty that in fact arises in relation to such conditions has reference to the first object, the limitation of the financial liabilities of the Government. With a healthy

condition of the capital account of any railway company, the interests of the shareholders and of the public using the railway are so nearly coincident, that stipulations to prevent misconduct on the part of the companies lead to no real practical difficulty; and on this branch of the subject hardly anything need be said. It is, therefore, the first point to which we shall mainly refer.

10. Among the most conspicuous of the facts that a review of the past history of railway construction in India brings out, is the paramount importance of a very strict limitation of the capital outlay. In this the experience of India is identical with that of all other countries. An extravagantly constructed railway is permanently a financial failure. To a poor country like India this lesson is of exceptional importance. Here the needful capital for railway construction can only be obtained at the risk, and under the guarantee, of the State. An unsuccessful railway is, therefore, a public burden. Resources which might otherwise be applied to the extension of material or administrative improvements, are permanently diverted to provide for the payment of interest on capital which has been misapplied, and remains unproductive. Even in a country of such extraordinary wealth and productive power as England, the wasteful expenditure of railway capital has become a very serious evil; and it may be affirmed, with the most complete certainty, that, if India cannot manage to provide itself with railways which shall so far pay as at least to cover the ordinary rate of interest on the necessary capital, the progress of construction must very soon be stopped, or the finances be brought into a condition of extreme disorder. The actual results of the present arrangements with Indian railway companies have forced upon us the conviction that this paramount condition has not hitherto been complied with, and that, under the old agreements, the Government has practically been unable to control the expenditure so as effectually to protect its financial interests; and this is among the strongest of the motives which induce us to desire to avoid the agency of companies in the future.

11. The average cost of Indian railways up to the present time has been about 17,000 *l.* per mile. The income of the very best line has hardly yet risen to an amount which would do more than pay 5 per cent. on such an outlay. The average rate is about 3 per cent. And it is necessary to bear in mind that the lines already completed, or in course of construction, occupy the most fruitful field for railway enterprise. It naturally happened that the lines of communication through the richest provinces and the largest towns, on which the traffic was most important, were first undertaken; and it can hardly be anticipated that the returns from the new lines which we have recommended will equal those obtained on the lines in operation. We consider it, therefore, an essential condition of such an extension of railways in India as the country fairly requires, and as we desire to accomplish, that, for the future, the cost of construction shall be largely diminished. In no other manner can we avoid the danger of throwing charges on the revenues which they could not bear. We are confident that by suitable arrangements such a reduction of cost as we speak of may be secured, though, if the agency of companies be still employed, the task will be greatly increased in difficulty, and we shall readily accept the responsibility of making those arrangements if we are fortunate enough to command the cordial support and co-operation of Her Majesty's Government.

12. The time has long gone by when it could justly be said of India that there was not sufficient experience to show what were the requirements of the country in relation to railways, and that the authority of England and English engineers was alone to be trusted in such matters. India, at the present time, possesses in all respects the knowledge and experience necessary to guide the Government in the course it should henceforth take in dealing with this most vital question, and we may now, with complete propriety, claim the same degree of discretionary power in dealing with the administration and construction of Indian railways as is exercised in relation to all other branches of the administration, and all other classes of public works.

13. We are not slow to recognise the great advantages to which the British Government of India will always possess in being able to draw from England engineers and administrative officers of various descriptions, who will furnish India

India with the latest results of the experience of England, derived from its vast transactions. But it is not too soon, in respect to railways in particular, to regulate our operations more closely by the special wants of this country, and, while we accept all that is suitable, to reject whatever is inapplicable.

14. We desire then to express our conviction that, among the essentials of Indian railways the necessity for cheap first construction stands foremost; and in any future arrangement with a company for carrying out railways, the terms of agreement should be mainly designed with a view to maintaining the power of the Government to limit the capital outlay to what is deemed strictly necessary in each case.

15. It will be found that several of the stipulations which were mentioned in the Minute of Sir John Lawrence, dated 16th August 1867, and recommended by the Government of India for adoption in their Despatch, No. 125, dated 3rd December 1867, were framed with the intention of securing this object. Various reasons were assigned by the late Secretary of State in his Despatch, No. 90, dated the 24th November 1868, for dissenting from the conclusions of the Government of India in these respects, and with a view to meeting the objections thus made, we shall now offer another suggestion.

16. The earlier clauses of the contract with the Oude and Rohilkhund Company sufficiently provide for the Government exercising a preliminary power of approval of the designs and estimates for the works. This power, if effectually exercised, will suffice to place the relations between the Government and the Company on a proper footing at the outset. The difficulty that has been felt is with respect to the subsequent proceedings. The practical effect of the guarantee clauses has been to render the Companies quite irresponsible for wasteful expenditure, and it was to prevent bad results from this consequence, that all the proposed restrictions on the Companies have been designed.

17. After further consideration, we think that a simple power of taking the works from the Company, in the event of the Government of India being of opinion that the railway is not being constructed satisfactorily, or is not likely to be completed for the sanctioned estimates, or with proper expedition, the Government reimbursing the Company all its outlay, will suffice, and be preferable to any special coercive stipulations. It is, perhaps, scarcely necessary for us to point out that the exercise of such a power in any case could not increase the direct financial burden on the Government, arising from wasteful outlay which had actually taken, as under all circumstances the Government will be liable for this.

18. Under the present contracts the power to terminate the arrangement with a Company for breach of covenant would not enable the Government to do what is now proposed. But a small alteration of the phraseology would suffice for the purpose. A discretionary power is given under the clause as it exists, to terminate the contract if the railway is not *worked* to the satisfaction of the Secretary of State, and what is required is a similar wide power as to *construction*.

19. This suggestion meets the points discussed in paras. 12 and 13 of the Secretary of State's Despatch above referred to.

20. The only other matter of real importance calling for notice in this place, which affects the financial interests of the State, is the application of the profits in excess of the guaranteed interest. On this point we continue to think that the proposals of Sir John Lawrence were no more than the Government had a right to demand, and we again urge the propriety of modifying the old terms in this particular. We accordingly would finally suggest that the excess of the net profits above the guaranteed rate of interest should be divided equally between the Government and the Company, and that the mention of the repayment of the guaranteed interest by the Company should then be dropped as unnecessary.

21. We cannot avoid observing that the equitable right of the Government to share in the profits of railways, towards the real cost of which they contribute, in fact, so largely, nearly one-fourth part, as was conclusively shown in

Sir John Lawrence's Minute of the 16th August 1867, seems quite incontestable. We must also add, that we find it difficult to reconcile the remarks in para. 17, of the Secretary of State's Despatch already referred to, as to the necessity for making large concessions to Companies to admit of the capital being raised, with the actual facts of the relative values of Indian railway stock and ordinary Government securities.

22. Moreover, so far as any sensible difference really exists between the estimation in which the two classes of security are held in London, it affords a very strong argument against the employment of Companies at all for railway construction. If Companies afford substantial financial facilities for raising capital, the terms they require should be more, and not less, favourable to the Government; if they do not afford such facilities, the main argument in favour of their employment seems to disappear.

23. We do not regard the length of the term for which the grant of the concession of a railway is made to a Company as of very serious importance, though we are not satisfied that the facility of raising capital would be practically affected by limiting the term absolutely to 99 years. We believe that there is no very important difference between the present value of an anuuity for 99 years and one in perpetuity, and how the circumstance of the investment being represented by railway capital can effect this fact we do not see.

24. The rights of the Government to have the mails carried free, and troops and Government stores, &c., carried at favourable rates, are essentially matters of detail, which only require to be clearly stated to remove all difficulties in the future.

25. The question of the proper limits to place to the expansion of Companies is not one which can be settled in an arbitrary way, or regarding which any definite rule can be laid down. Nor was this proposed by the Government of India. But the general principle laid down in Sir John Lawrence's Minute on this subject, seems to us to be correct, and to be of much practical importance.

26. The above remarks meet all the points which are discussed in the Secretary of State's Despatch, No. 90, of the 24th November 1868, relating to the employment of Companies in railway construction. But there is one consideration which was referred to in the Minute of the 16th August 1867, to which no allusion is made in that Despatch, and to which we attach much importance. It is the policy of allowing Companies to carry out railways in Native States.

27. On this, as on several other similar matters, it is not perhaps possible to lay down any invariable rule. But the Government of India feels very strongly the objection that there may be in some cases to allowing Companies to carry out works in Native States. So far as it is possible to lay down a principle on this point, therefore, it must be to prevent the action of Companies under these circumstances; and the inexpediency of admitting them should be presumed until the contrary has been distinctly affirmed, after careful consideration of each case.

28. It is, of course, not intended by such a caution to interfere with the passage of railways, carried out by companies, through small isolated or outlying portions of Native States, or that the prohibition should apply to the smaller class of States whose territories are surrounded by those of the British Government. But in the case of the larger principalities, which have real independence of internal administration, and are politically important, we think the caution most essential; and especially so, if the proposed line goes to the principal town, where the court is held, or the chief resides.

29. Thus we regard it as altogether opposed to a prudent policy to allow a railway to be carried out by a company through the dominions of the Nizam to Hyderabad. We should equally deprecate such an agency for constructing railways in Rajpootana. It is not necessary, however, to do more at present than illustrate our views of the general policy to be adopted, each particular case being left to be decided on its own merits.

30. It only remains for us to refer to the suggested distribution between the agency of the Government and companies of the two classes of lines which are described

described respectively as political and commercial in Sir Stafford Northcote's Despatch of the 16th January 1868. The views of the Government of India regarding the distinction drawn between such classes of railway must have been misunderstood. We think that it would be altogether impracticable to apply such a classification; and, assenting fully in the reasoning of Sir John Lawrence on this subject, we trust that, on a further consideration of the matter, the attempt will not be made to throw upon the Government the invidious duty of constructing only lines of railway which cannot pay.

31. In recapitulation, we would repeat that we regard the direct action of the State as most likely to bring about generally satisfactory results, though we should hope that the agency of companies could be made compatible with a proper protection of the financial interests of the State, under certain restrictions and cautions, to which we have requested your Grace's attention. We have pointed out particular circumstances under which we consider that companies should not be employed, on grounds of political expediency. And lastly, we have expressed a hope that the suggestion, that the construction of lines of railway not likely to pay should be made over to the Government, while those which afford a fair prospect of being remunerative should be reserved for companies, may not be carried out in practice.

32. With these remarks we conclude our observations on the question of the agency by which railways should be hereafter carried out in India, and, in so doing, we would beg very respectfully, but, at the same time, very emphatically, to request your Grace to understand that the conclusions which we now state are the final results of very careful consideration. We strongly feel the serious responsibility placed upon us to press upon Her Majesty's Government that the power of the Government of India to control the operations of railway companies should be strengthened in the manner suggested. Further, we desire to add, that if what we ask cannot be secured, or if the companies fail to comply with the necessary conditions of economical management and construction, we must strongly urge that, for the future, the agency of these bodies should be altogether dispensed with for the construction of Indian railways.

We have, &c.
(signed) *Mayo.*
W. H. Mansfield.
G. N. Taylor.
H. M. Durand.
H. S. Maine.
John Strachey.
R. Temple.

(No. 25.)

My Lord Duke, Fort William, 11 March 1869.

In continuation of our Despatch, No, 24, of this date, relative to the extension of railways in India, we purpose in the present communication to discuss that part of the subject which relates to the selection of new lines for construction, and the order in which they should be undertaken.

2. There are two main preliminary considerations which necessarily call for attention in endeavouring to come to any conclusion on this question,—first, the probable limit of the supply of capital for railway construction in India; and, second, the probable limit of the power of the State to pay interest on capital invested in such works. We think that the actual rate of progress in the construction of new lines will be found to depend on the first of these conditions almost as much as the second.

3. For our present purpose, however, it is not necessary to arrive at any very exact conclusions on either of these points, and all that is desirable is that such an approximation shall be obtained as will serve to guide us in estimating, within somewhat wide limits, the probable relation between our means of construction and the whole length of railway which would be required to supply India with a main system of lines sufficient to open up all its principal provinces.

Such an approximate estimate is, we believe, supplied in Sir John Lawrence's Minute of the 9th January 1869, and we entirely accept the general conclusions based on that estimate.

4. These conclusions may be thus stated,—

First. That every part of India, which can at the present time be reasonably regarded as requiring railways, could be brought within a general network of lines, the aggregate length of which would be about 15,000 miles, of which about 4,000 miles are opened, 1,000 miles are in progress, and 900 miles are about to be put in hand.

Second. That by the continued expenditure of about 3¾ millions yearly, it might be possible to open on an average 300 miles of railway yearly, reckoning the average cost per mile of the new lines to be 12,000 *l.*

Third. That such a supply of capital might probably be forthcoming for the purpose in question, in addition to the sums required for irrigation and other works of improvement for which money must be borrowed, without seriously disturbing the money market.

Fourth. That the resulting charge, in the shape of the excess of the sum to be paid for interest over the net receipts of the open lines, would not be likely to exceed the amount which could be spared from the revenues for the purpose of carrying out these extremely important works, and that any necessary adjustment between the actual charge and the available resources of the Government, could readily be made by reducing or increasing the rate of annual outlay.

Fifth. That by the regular prosecution of railway extension on some such moderate and persistent system, the great requirements of India could, in all probability, be met in a period of about 30 years from the present time, without either extraordinary taxation, inconvenient pressure on the public revenues, or objectionable increase of the liabilities of the State.

5. It is, of course, plain that the soundness of all these conclusions rests on the truth of the assumption made as to the probable cost of the new lines. In proportion as the cost exceeds the sum before named, 12,000 *l.* per mile, or falls short of it, the period that is necessary for completing the contemplated network of lines, and the capital outlay and corresponding interest charge, will be increased or diminished also. To these and other points relating to the cost of the new lines, and the sums which may in the future be required for additions to, or improvements in, the old lines, we shall, however, refer more at length in a further Despatch.

6. It will not be necessary for us to follow in detail the whole of the lines which are suggested in Sir John Lawrence's Minute. The manifest intention of the late Governor General was to propose the construction of such a system of railways as appeared likely to give a tolerably complete network of main lines, traversing all parts of India, in which considerations of policy, or the probable requirements of the trade and internal convenience of the country, indicated the utility of opening such lines, and gave sufficient grounds to anticipate the eventual growth of a traffic which would pay the interest on the cost of construction. We most fully concur in the propriety of now looking forward to the prosecution of such a system of railways, and it is, we think, in relation to its place in such a system that every new line henceforth projected should be considered, and the decision regarding it come to.

7. The physical features of the British possessions in India are such as to leave no very great room for difference of opinion as to the general features of a network of railways to supply the whole country. It is to be expected that differences will arise as to details; and the solution of such differences, and the adoption of really definite conclusions as to the exact lines to be selected, can only follow on the execution of proper surveys, and the careful consideration of the numerous local circumstances and demands which may reasonably influence a decision. In this sense, and with this reservation, we regard the general outline sketched by the late Governor General as satisfactory and sufficient.

8. It remains for us, however, to review in greater detail those lines which have been named for immediate construction, and to state how far we consider the

the claims advanced in their favour to be valid, and in what relative order the lines now approved should be undertaken, and by what specific agency in each case.

9. *The Indus Valley Railway.*—This line is one which should be undertaken early. But it is a line on which the strictest economy should be observed in construction, and which it may therefore be necessary to carry out by degrees, so as not to affect the price of labour, which will be scarce along the whole line. For the same reason, it seems almost impossible to regard the whole of this line as being in a position for immediate execution, until some decision is come to relative to the remodelling of the irrigation works in Sindh. There is ground for thinking that, by combining the excavation of a main line of canal, such as has been projected from Sukkur towards Hyderabad, with the formation of the railway, an important saving of expense might be secured, and other advantages obtained. Opinion, moreover, is still divided as to the best line to occupy below Sukkur, and whether the right bank or the left bank of the Indus should be followed. All these doubts, however, may readily be removed, and measures should at once be taken to effect this.

10. But for the part of the line between Sukkur and Mooltan, an immediate decision is possible. It will certainly be expedient to begin from Mooltan and to work downwards. This plan has the evident advantage of rendering the communications between the Punjab and the sea independent of the navigation of the worst part of the Indus, at the earliest period possible. Moreover, in case of the necessity arising of our having to defend the line of the Indus south of Mooltan, it would be from the garrisons of the Punjab and Upper Provinces where the bulk of our army lies, that the troops would be drawn rather than from Kurrachee.

11. As regards the upper portion of the line, therefore, we desire at once to cause all necessary surveys to be completed for obtaining a definite and final project and estimate, on the receipt and approval of which the work might be commenced as soon as possible. At the same time, negotiations might be entered into with the Bhawulpoor State, relative to the prosecution of the line through that territory. All further needful inquiries should also be prosecuted as to the portion of the work between Kotree and Sukkur, with injunctions to bring them to a conclusion as early as practicable.

12. There may be some doubt as to the agency by which this railway should be carried out; but this should not be allowed to interfere with the most speedy possible prosecution of the preliminary operations above spoken of. Whether the line is carried out by a Company, or by the Government, the same strict regard to economy must be enforced, and the same close scrutiny exercised over the designs and estimates. Before the designs are completed, all doubts as to the agency for construction may easily be disposed of. If the railway is to be combined with a canal, it would almost necessarily follow that the Government should carry out the part of the line on which this is done, and if so, then probably the whole line. Further, the fact of the line passing through Bhawulpoor for a considerable distance may render this arrangement desirable, and the urgent necessity for enforcing the strictest economy in construction tends in the same direction. If, however, it be thought right to concede the line to the Sindh Railway Company, the most complete security should be taken to give the Government power to exercise a really substantial control over the cost of the works. This we regard as most essential.

13. *Rajpootana Lines.*—A railway through Rajpootana to connect the North-Western Provinces with Bombay is also one which may properly be set about at once.

14. Regarding the northern portions of such a line there seems to be sufficient evidence to admit of a final conclusion being come to. It is clear that provision should be made for establishing railway communication from Ajmeer, and thence by the Sambur salt lake, *vid* Jeypoor, to Delhi on the one side, and to Agra on the other. As to the line to Delhi, it is satisfactorily shown that from Jeypoor it should pass by Ulwar to Rewaree, and thence through the Sooltanpoor salt field to Goorgaon, and so to Delhi. A branch to Bhewanee, a large commercial mart to the west of this line, will be probably required in the future. As regards the

line to Agra, the question arises whether, instead of being taken direct through Bhurtpoor, it should not be somewhat deflected so as to pass through the chief salt-producing tracts of this principality. This question will require further special investigation.

15. A doubt also arises as to the direction to be given to a railway to Bombay south of Ajmeer. The most recent papers on this subject appear to show strong reasons for preferring the route below the Aravalli Range, *viâ* Palee and Deesa, to Ahmedabad, to the direct line along the high land, through Neemuch down the valley of the Myhee to Baroda. We are not at present in a position to give a final opinion on this question, and all that need further be said on it is, that an early decision should be come to.

16. The question must also be considered whether a second line, from the Great Indian Peninsula Railway to Indore with a continuation to Neemuch and Ajmeer should not be undertaken, whatever decision is come to respecting the direct Neemuch and Baroda line, or the alternative route by Deesa. The line from Ajmeer to Indore, besides its military and political value, would command the traffic of the Sambur and other salts destined for Eastern Rajpootana, and, passing through Rutlam and the opium-growing tracts of Malwa, would derive a highly paying traffic from that source. It would, moreover, be able to take up the coal and timber of the Nerbudda valley into Rajpootana, where these products are not naturally found, and will be much valued.

17. As to the agency for carrying out these lines, we have no hesitation in saying that, from Delhi and Agra to Ajmeer, they should be taken up as State lines. The requirements of the salt trade, as well as the political considerations arising from the passage of the railway through the numerous independent States of Rajpootana, with which our relations are always delicate, conclusively lead to this determination. Under no conceivable circumstances could such lines be properly entrusted to a company having its chief agency at Bombay. We should equally very strongly deprecate the idea of any extension of the East Indian Railway into Rajpootana, even if the shareholders desired it, which is not probable.

18. For the southern parts of these railways, perhaps it might not be objectionable to give a certain portion of a line through either Neemuch or Deesa to the Bombay and Baroda Company, but how far such a concession should go, we cannot precisely decide without consulting the Political Officers residing in the territories to be traversed. As to a line from Ajmeer or Neemuch *viâ* Indore to the Great Indian Peninsula Railway, we think it should certainly be retained in the hands of the State, so far as it passes through foreign territory, for the same reasons which have led us to adopt that opinion as regards the northern portions of the line.

19. Our conclusions regarding this series of railways, therefore, are that immediate measures should be taken for carrying out lines from Delhi and Agra to Jeypoor and the Sambur salt lake. That the line from Delhi as far as Rewaree may be at once surveyed, marked out, and commenced. That the needful further inquiries should at once be put in hand, as to the exact direction to be taken from Agra, and that, when this is settled, this line also should be taken up for immediate execution. We propose, in anticipation of your Grace's approval, to carry out these resolutions, if we are able to obtain the engineering staff requisite for the purpose.

20. As to the southern parts of the system, the necessary further investigations should be completed as soon as possible, and a final decision taken as to the direction of the lines, and the agency by which the works should be constructed.

21. In connexion with the execution of these railways, and the future requirements of the salt trade between Rajpootana and the North-West Provinces, it will most likely be found necessary to enter into special negotiations with the Native States in whose territories the salt-producing tracts are situated, and through which the projected railways pass. This subject, however, will be separately considered, and our conclusions will be duly reported for the information of Her Majesty's Government.

22. *Line*

22. *Line to Kumaon Iron Works.*—This short line, to connect the Kumaon Iron Works with the Oude and Rohilkhund Railway, is one which we consider to be of great importance with reference to the cheap provision of iron for the railways of Northern India; and though it has already found a place in the system of lines to be executed by the Oude and Rohilkhund Company, we think it desirable to notice it in a prominent manner in this review, and to express a hope that the Company will be urged to use all practicable despatch in carrying it out.

23. *Darjeeling Railway, Kooshtee to Titalyah, 210 miles.*—The line to give communication through Northern Bengal to the foot of the mountains below Darjeeling is one which commends itself for early construction on many grounds of policy.

24. We shall be glad to hear that you assent to this view, and we shall then be ready to take immediate steps for finally settling the exact line to be followed, regarding which there has been some doubt. We incline to think that the construction of this line should be offered to the Eastern Bengal Railway Company, either as an extension of their present contract without the new provision as to the division of the profits in excess of five per cent., or as a separate undertaking with that provision. In either case, we consider that it should be distinctly understood that the Government will not conclude the arrangement finally with the Company, unless perfectly satisfied as to the moderation of the estimates; and that powers to deprive the Company of the concession at any time, if the Government of India is not satisfied that the works are being carried out with proper economy, will be secured under the new contract. The Company should, we think, be plainly given to understand that, if these offers are declined, they will not be repeated, and that the Government will then carry out the railway itself. On receiving your authority to do so, we will request the agent of the Company to set about the final surveys necessary to determine what is still doubtful in relation to this line, and to make specific proposals for the immediate commencement of operations on it.

25. *East Coast Railway, between Calcutta and Madras, Northern Section.*—The necessary steps may, we think, be taken for obtaining designs and an estimate for the first section of this line to Midnapoor. The Madras Government also should be consulted as to the system which they would recommend for carrying out the southern part of it. Possibly a separate commencement might be made from Coconada, a port at which railway materials could, we believe, be conveniently landed at all seasons of the year. Such operations could hardly fail to stimulate the activity of trade in the deltas of the Godavery and Kistnah, and, perhaps, might add to the inducements of merchants to make use of the newly opened line of navigation up the Godavery. The actual commencement of this railway might be considered in connexion with the results of the investigations regarding the ports on the east coast, which we have just proposed to your Grace. No existing company having any claim for these lines, they may properly be taken up by the State.

26. *East Coast Railway, Southern Section.*—The line already projected, from Arconum towards Pondicherry, is one which the Government of India has already determined may properly be executed. It seems, however, desirable that its exact direction should be reconsidered, with a view to its taking a place eventually as a coast line south of Madras, giving another connexion with the Great Southern Company's lines, and that it should be laid out accordingly, in the manner which would be most suitable for such a railway. This may perhaps open the question whether the terminus should not be in Madras itself, and not at Arconum. The work might be entrusted to the Tramway Company, subject to all the new conditions we have named, and put in hand at once.

27. Although we are far from opposing the adoption of a narrow-gauge railway when circumstances seem to indicate that proper financial results cannot otherwise be obtained, we are not inclined to acquiesce in the expediency of constructing short lengths of railway on a gauge different from that in common use. If narrow-gauge lines are to have a fair field, they must be given a sufficient development to render the cost of shifting goods from their waggons

to those of adjoining broad-gauge lines unimportant in relation to the freight for the average distances over which the goods are carried. We do not think that this condition can be properly complied with unless 100 or 200 miles at least of a narrow-gauge system is constructed, and short of this we should not view favourably a proposal to execute narrow-gauge lines in a country so easy as that immediately south of Madras. The known desire of the French Government to obtain a railway connexion with Pondicherry, by a line of the full Indian gauge, should, we think, have much weight in the decision come to on this question, and on the understanding that the outlay will be kept down to the sum named in the estimates that have been made, about 7,000 *l.* per mile, we are clearly of opinion that the 5 feet 6 inches gauge for this railway should be adopted, as far at least as the point from which the line to Pondicherry would leave it.

28. *Branches of Madras Railway.*—The short branches proposed in connexion with the Madras main line seem suitable for early construction.

29. *Railway to Tuticorin.*—We think that the proposals made regarding this line require to be reconsidered in relation to the general arrangements which would be most convenient for the whole of the southern part of the Peninsula, taking into consideration the opening of a new coast line from Arconum or Madras, as before noticed. When a decision has been come to on the general subject, the gradual execution of the lines by the Great Southern Company might be sanctioned, subject to the conditions named for the Eastern Bengal extension.

30. *West Coast Railway Southern Section.*—It is certain that some extension should be given to the railway from Beypoor at an early period, and preliminary measures might be taken for the commencement of a line to Calicut on the north, and to Cochin on the south, as soon as the engineering questions involved, and the general fitness of the proposals that have already been made regarding such lines, have been considered in relation to a general system of railway communication in the manner we have before explained. We greatly doubt the expediency of permitting the Madras Railway Company to obtain a position on the west coast of the Peninsula, where a completely different set of interests must certainly exist to those which affect the traffic on the old lines of the Madras Company. Under these circumstances, we should prefer all west coast lines to be undertaken by the State, excepting, perhaps, the simple extension of about seven miles from Beypoor to Calicut, and the Government should retain the power of taking over this line from the Company, at any time, if it was found expedient to do so in the interests of the public.

31. *West Coast Railway, Northern Section.*—The opening up of an additional port, to meet the requirements of the southern section of the cotton-producing tracts of the Deccan, is of evident importance, and Carwar has already been generally recognized as the point to select for the coast terminus of a railway to serve the export trade of the Southern Mahratta country. From Carwar, communications would be gradually extended along the coast to the north and south. We think that the examination of the country from Carwar up the Ghats, which has been just ordered, may usefully be extended to 40 or 50 miles along the coast. Such coast lines would probably greatly aid in bringing the trade at the neighbouring small marts and ports to concentrate itself at Carwar. The line from Carwar to Dharwar or Hooblee might be begun as soon as practicable, and for it the central rail system would seem to be suitable. The extension of the lines in the Deccan must of necessity be postponed to a later period. These lines we should wish to see taken up by the Government, as they will certainly require to be carried out with very strict attention to economy. It is, moreover, of much importance in behalf of the interests of the public, that such a railway as that leading to the new port of Carwar should be thoroughly under the command of the Government. If this be not secured, there will be much danger of private influences being brought into play, and the future prosperity and success of the port might thus be seriously endangered or obstructed. In a new settlement like that at Carwar, this caution is, we think, essential.

32. *Mysore.*—A gradual development of railways in Mysore might be carried out

out from Bangalore, with the intention of their eventually joining into the Southern Mahratta series, and so giving an additional outlet to Mysore by Carwar. The best way of setting about such lines, with regard both to the system of management and the financial arrangements, may usefully be at once discussed and settled. All these lines should be carried out by the Government for the Mysore State.

33. *Hyderabad Railway Koolburga to Hyderabad, 116 miles.*—This is an important line, which may properly be taken up at once as a State line. It might be worthy of consideration whether the portions of the great Indian Peninsula Railway and the Madras Railway which traverse the Nizam's dominions, might not be also transferred to the Government in exchange for some other equal lengths of new railway to be conceded to them. There would appear to be no practical difficulty in arranging such an exchange if the companies agreed to it.

34. *Junction of North East and South East Branches of the Great Indian Peninsula Railway, Munmar to Dhoondh, 132 miles.*—This also is an important line. Its construction would apparently necessarily fall to the Government, the Great Indian Peninsular Company having, it is believed, declined to accept it. It would conveniently form part of the secondary Deccan system, which would serve the Southern Mahratta country, and have a terminus at Carwar, as already noticed.

35. We may here observe that the main point to consider in regard to this line is its probable cost, which, if we were to accept the estimate that has been prepared, would be such as to preclude the hope of the interest on the capital being covered for an indefinite period. We regard it as essential, therefore, that this matter should be reconsidered, and some means found of greatly reducing the outlay. Possibly, the only feasible solution of the difficulty will be to adopt a narrow gauge, say of three feet six inches, for the whole of this series of lines, including that to Carwar. In this event the Mysore lines, which would join on the Deccan series, should almost certainly be narrow gauge also.

36. *Branches to the Great Indian Peninsula Railway.*—Admitting fully that the construction of really useful and cheap branch lines to the main trunk railways is desirable, the expediency of further weighting the capital account of this Company, unless for lines clearly shown to be likely to be remunerative, is more than doubtful. However, if any of the proposed branches can have such a character satisfactorily established for them, they might be carried out by the Company if proper precautions are taken as to the limitation of the outlay. Otherwise the Government should itself construct the branches, and lease them to be worked by the Company.

37. *Branches to Bombay and Baroda Railway.*—The same remarks apply in this case, only with still greater force, as to the urgent necessity for abstaining from further outlay without sufficient proof of a fair return being realised. The additional convenience given to narrowly restricted localities, a few miles only distant from the existing main lines of railway, should not be permitted to stand in the way of the opening up of new districts, and giving them the vast advantages of railway transport which they do not now possess. Any branch which will not distinctly reduce the total burden of interest payable on the total capital of this Company, will, *pro tanto*, obstruct the provision of railways to other parts of India, where they are certainly far more required than in districts within 20 or 30 miles of an open line leading directly to one of the largest commercial cities in the country.

38. *Ahmedabad to Veerungaum and Wudwan, 73 miles.*—This extension seems to comply with the essential requirements which we have laid down, subject to any reconsideration of the direction of the line west of Veerungaum, which a possible connexion with Sindh and the construction of a main line through Kattywar may show to be proper. This could be given to the Bombay and Baroda Company under conditions such as those already mentioned.

39. *Kattywar Lines.*—The best possible arrangement for giving a main line through this country should receive early consideration. Having regard to the very peculiar condition of the Government of the Peninsula of Kattywar, it may be proper that these lines should be carried out as State works; if this be not

found necessary, they might be offered to the Bombay and Baroda Company, as forming suitable extensions of their main line.

40. *Rangoon to Prome*, 166 *miles*.—This line might, we think, be put in hand, and carried out gradually as a State railway.

41. This concludes the review of those lines to which, as at present informed, we think immediate attention is required. If the list should appear long, and the liabilities likely to be incurred by undertaking so much at once should seem to go beyond what is prudent, we would observe, that it is our intention to advise that the actual expenditure on the several railways should be strictly limited year by year, on a regularly arranged Budget Estimate, to a certain fixed aggregate amount, say for the present $3\frac{3}{4}$ millions sterling. We should so control the operations as to ensure the gradual and successive opening of the new lines in sections conveniently disposed for the traffic of the country. The superintending establishments would be organized so as to suit the rate of progress deemed advisable in each case, having regard to the natural facilities for obtaining labour and materials, and the economical execution of the works. There is, we are convinced, no greater mistake than to attempt to force on the construction of works of this class, when grave political interests are not at stake, in a manner which will seriously increase their first cost. The financial objections to sacrificing the permanent productiveness of a railway, by incurring an additional interest charge on capital not strictly necessary, for the sake of opening the line a year or so earlier, are obvious, and cannot properly be neglected, unless under altogether exceptional circumstances.

We have, &c.
(signed) *Mayo.*
W. R. Mansfield.
G. N. Taylor.
H. M. Durand.
H. S. Maine.
John Strachey.
R. Temple.

(No. 28.)

My Lord Duke, Fort William, 22 March 1869.

We shall now conclude our observations on the subject of the extension of railways in India, discussing the third point noticed in our Despatch, No. 24, of the 11th March, namely the considerations which will hereafter call for special attention in respect to the administration and construction of Indian railways.

2. In the remarks which we shall offer on this part of the subject, your Grace will again find that the necessity for securing a strictly economical system of management and construction is the ruling idea which directs our conclusions and recommendations. The primary aim of our railway administration should assuredly be, to secure the most efficacious application of the limited means at our command to the prosecution of the great works of internal communication, on which the development of the industry, commerce, and wealth of this country so directly depend. Among the many conflicting claims which will arise for the provision of new railways those should first receive attention which will most fully comply with this condition; and in the outlay of fresh capital, of which the available amount will necessarily be limited, the same principle should guide our selection of the new works to be undertaken, whether they are in extension of railways already opened for traffic, or for altogether new lines. Where every unprofitable mile of railway causes a permanent drain on the already too restricted means at our disposal, and so prevents progress, special attention is manifestly demanded to the remunerative character of the undertakings; and this essentially depending on the amount of the capital invested, the suitable adjustment of the outlay, and, therefore, of the character of the works, to the probable traffic and income, are of no less importance. It is only by careful attention to these principles that the advantages we hope to confer

confer on the British possessions in India by the extension of railways can be fully secured.

3. The thrifty application of the available means of the Government to railway extension further requires careful consideration of the results of the working of lines already opened. We think that sufficient attention has hardly yet been bestowed on this subject. The system under which the disbursements for guaranteed interest have been hitherto made has had the effect of leaving this item of expenditure to be regarded as beyond all control. This, however, is very far from being the entire truth. Everything which tends to increase the railway income, and to reduce the charges for management, directly operates on the payments under the guarantee. We are satisfied that greater watchfulness may be usefully inculcated in both these respects, and that more active steps should be taken to diminish the charges, and, if possible, to increase the receipts of all railways, especially those which do not yet yield a net income sufficient to cover the guaranteed interest. So long as the Government pays any portion of the interest on the railway capital, the charges for these works are, partly at least, directly met from the public revenues; and the Government has the most complete justification in demanding the closest supervision, and every reduction of current outlay which can safely be effected. The power to do this should not be permitted to sleep, if at any time it becomes expedient to use it.

4. We therefore consider that the review of the railway estimates of revenue receipts and charges should henceforth take special cognizance of the guaranteed interest; and that the same attention should be given to the endeavour to make the railway income meet the charges, as though the transactions were wholly in the hands of the Government.

5. Another analogous but even more important measure will be the close scrutiny of all proposed additions to the capital outlay of the railway companies having open lines. Inasmuch as every such addition of capital brings with it a direct liability on the State to pay interest, the charge is one which affects the general financial position of the Government almost as completely as though it had been directly incurred by the Government. We are distinctly of opinion that a far more rigid scrutiny must be exercised over those constant additions to the guaranteed capital of the numerous companies for minor additions and improvements, which have till now passed almost without notice in relation to their financial effect on the liability of the Government for interest. It is only by a strict and consistent refusal to allow such a perpetual drain on the available fund for extending the railway system into new districts, that a thoroughly satisfactory rate of progress can be secured. To effect such a check, a more regular annual review of the estimated capital outlay of the various companies must be established, and a system of control enforced on the model of the regular Budget system of the public accounts.

6. We shall be prepared to find objections raised to any measures of increased stringency in checking the expenditure of capital under guarantee; but we are satisfied that they have become quite necessary, that they will in no degree be opposed to the spirit or letter of the contracts, and that it is alike in accordance with the best interests of the public, of the State, and of the companies themselves, that the measures which we now advocate should be carried into effect with the smallest possible delay. On this point we will quote the words of Sir John Lawrence:—"The experience of India in respect to the growth of railway capital is thus beginning to teach the same lesson that has been taught on a gigantic scale in England, namely, the urgent necessity for resisting the tendency to incur additional capital outlay without creating clear additional paying power in return. The enormous and ruinous extent to which the capital accounts of many English companies have become inflated, has been for some time past the theme of public discussion. If this can have happened in England, under conditions best suited to secure economical management, how far greater is the danger for India, where all ordinary restraints are removed by the grant of an absolute guarantee of interest, which is now well known to be in fact subject to no limitation whatever. I regard this danger with great concern, both in relation to the prospects of existing lines and our hopes of extending them. If the Government is to avoid it, some means must be found for putting an effectual

stop to the insidious growth of the capital of the old lines." It is under the circumstances thus referred to that several of the great English companies have recently adopted a financial policy quite analogous to that which we now advocate.

7. Very great improvements have, no doubt, been made within the last few years in the system adopted for the accounts between the Government and the companies, and for the accounts of the companies themselves. But we have good reason to think that there is still much room for improvement. By requiring greater precision, and the exhibition of results with greater clearness, we may secure the means of exercising a more effectual financial command over these transactions, which are already of a gigantic magnitude, and have still not yet received their full development.

8. When it is considered that the guaranteed railway capital will, before many years are over, almost certainly amount to 100 millions sterling, on which the interest charge will be five millions, and that the receipts are gradually approaching to double that amount, the vast proportions of the stake which the Government has in these works will be better appreciated. The gross traffic earnings of the Indian railways at the present time already exceed six millions sterling, a sum greater than the entire revenues of the North-West Provinces; and when they shall suffice to cover the guaranteed interest, they will exceed the revenues of any province in India, excepting Bengal, and amount to one-fifth of the whole revenues of the country. In like manner the railway current expenditure, which is now about three millions, nearly equals the whole expenditure of the Madras Presidency, excluding the army, and exceeds that of the North-West Provinces. When the whole of the lines are in full operation, the total expenditure will be nearly equal to the total civil expenditure of the province of Bengal.

9. We desire to draw the very special attention of Her Majesty's Government to these facts. We feel that it is impossible to over-estimate the importance of maintaining the most careful watch over the details of the financial administration of these enormous transactions, in which the Government is far more directly interested than the ostensible owners of the railways are or are likely to be. The State is bound to pay to the shareholders a fixed rate of interest, whatever be the result of the management of the lines. In the economical construction or working of the lines which are not soon likely to pay more than 5 per cent., or in any mismanagement which would still further reduce the net profits when they are below 5 per cent., the shareholders can have hardly any concern. The Government alone is seriously interested in securing economy in these cases, and the duty of seeing that this is accomplished is no less obvious than weighty. To expect substantial co-operation from the companies under such circumstances would be visionary, and the actual results seem to us to render discussion on this topic needless. But, in whatever estimation the management of the companies be held, the obligation on the Government to exercise a strict supervision on the whole of the operations is in no way affected.

10. We entirely concur with Sir John Lawrence in the opinion that such a control as is essential for maintaining proper economy in the management of Indian railways must be exercised in India, and must be finally placed in the hands of the authority responsible for the finances of the country, namely, the Governor General in Council. Everything which weakens the control exercised in India renders the task to be accomplished more difficult. We, therefore, desire very earnestly to submit, for your Grace's consideration, that the Government of India should, as far as is practicable, be henceforth left to be the final authority, acting through the several local governments, in respect to all the details of transactions between the Guaranteed Railway Companies and the Government arising in India, and that the Secretary of State should abstain from dealing with that class of questions which relate to construction, maintenance, traffic rates, or general management, reserving to himself the management in detail of business arising in England, and continuing, of course, to exercise such a general control over the policy and measures of the Indian Governments as is customary in all other branches of the administration.

11. We need hardly assure your Grace that nothing is further from our intentions than to aim at any undue extension of our own authority, or diminution of

of the authority of Her Majesty's Secretary of State for India. But we are satisfied that such a full and effectual control, as is essential for the protection of public interests in relation to the transactions between the railway companies and the Government, can only be obtained in the manner we have stated.

12. We are impressed with the conviction that most mischievous results now ensue from the system that has by degrees grown up, under which the agents of the companies have come to regard the local authority exercised in India as of secondary importance, and to refer, we may almost say, habitually, questions on which the decisions of the Government in India are not acceptable to them, for the consideration of the London Boards, before carrying out instructions to which, under the contracts, they are bound to give implicit and immediate obedience. It is thus that the London Boards of Direction have obtained a position in which they can paralyse the action of the Government in this country.

13. In illustration of the views which we have thus stated, we would refer to the following extract of a Despatch from the Government of Bombay, addressed to your Grace (No. 3, dated 9th February 1869), which has been placed before us since this subject came under our consideration. It gives a specimen, and by no means an unusual one, of the results of the system to which we have alluded :—

* * * * * * *

"2. From these papers you will observe that we have been compelled to sanction the arrangements referred to, in order to facilitate the opening of these sections of the line by April 1870.

"3. But we cannot too strongly deprecate the system obtaining on the Great Indian Peninsula Railway, of granting increased rates to contractors on their representations of the unprofitable nature of special classes of their work. The system leads to constant delays and embarrassments. The contractors carry out the portions of their work that are most remunerative at first, and then keep back the rest till, by constant applications, they extract either a verbal or written promise from the railway officers for an enhancement of the rates. These promises have frequently not been brought before us for confirmation until long after the period when the new rates were intended to come into force, and we have had to decide between repudiating the arrangements entered into by the railway officers with the contractors, or of abandoning the general right possessed by Government of controlling the expenditure of the Company.

"4. We trust you will call on the directors to impress on their officers the propriety of their not entering into engagements with contractors, or even commencing negotiations for an advance on sanctioned rates, without our previous concurrence; and we hope, also, you will prevent the directors from agreeing to any change in the prices to be paid for work in progress in this country, in opposition to our views, or before the alterations have been referred to us for consideration.

"5. The impressions apparently entertained by some contractors, that they can obtain, by representations in England, prices for work that would never be granted by us, and that are far in excess of what small local contractors are able and willing to execute the work for, cannot fail to have a most prejudicial effect on operations out in India."

14. It is with no desire to limit the fair and reasonable authority of the Boards of Directors of Indian Railway Companies in the management of their affairs in India that we express these opinions. We claim nothing more than the power to protect the Government, which stands in the place of the people of India, against the ascertained consequences of the existing system of railway management under the guaranteed companies, and we only assert the self-evident proposition, that the Government, which is wholly responsible for the financial results of the operations of the companies, may properly exercise a real financial control over those operations, in accordance with the distinct terms of the contract.

15. For altogether similar reasons we would further press upon your Grace that the same general principles should be applied to all future transactions with capitalists desiring to carry out new railways in India, and that the settlement of all such matters should be left to the local authorities, acting under our general instructions, or to us, as the case may require. It is only in India that the information necessary to regulate the details of any such agreements can be satisfactorily obtained, and there will certainly be much public ad-

vantage if the initiative in these matters is entrusted to the local authorities, reserving for Her Majesty's Government the full power of review and of final sanction.

16. It further only remains for us to allude to the questions noticed in the two last paragraphs of Sir John Lawrence's Minute. He says,—

"If there is one thing which comes out in more prominent relief than another, in connexion with railway construction in all parts of the world, it is this, that those lines are financially successful in which the capital accounts are kept down to a low amount, and those are unsuccessful in which this has not been accomplished. The lesson we should learn from this is, that the character of the line, and the amount of expenditure upon it, should be regulated, as far as possible, by a proper consideration of the probable returns, and not more than is essential by any preconceived ideas of what is the best standard form of railway to adopt. I regard it as the extreme of infatuation to lay down any absolute rules to regulate the modes of construction of railway in a country so vast, so various in its natural features, and so poor as India. Still more mistaken is it to apply to India rules essentially based on the wants of England, which is probably the country in the world from which India most widely differs. England, of all others the richest, the most populous, the most celebrated for it manufactures, the most addicted to commerce, an island of small size, in a highly advanced state of civilization, where despatch is of extreme importance, and time equivalent to money,—England, of all countries, is the last which we should take as our model in these things. In one respect certainly, but only in one, can I admit that English standards are applicable; let all workmanship be thoroughly good of its kind, and every part of the construction permanent, and suited to what is required of it.

"Skill in engineering works implies the successful adaptation of the art of construction to varying circumstances. For a poor country economy is one of the essential conditions to be complied with, and its requirements may be as rigid as any of those imposed by physical conditions. Wholly to reject railways for a country which is not able to support lines of the most costly description, is quite unreasonable, and if, on a further examination in detail of the probable cost and returns of any of the lines which otherwise seem desirable, the expense of lines of the ordinary gauge seems prohibitory, while lines of a narrow gauge would be financially practicable, I should consider it a most mistaken view to reject the narrow gauge line. And so with any other modification of ordinary practice. For complete success in the great operations which the Government of India has before it, broad views and a ready adoption of all truly sound measures, whether out of the usual course or not, are essential, and it will be a source of lasting regret if the progress of this country, which, of all others, most directly depends on the improvements of its means of internal communication, should be retarded by weight of administrative prescription or engineering prejudice."

17. The truth and importance of these observations are unquestionable. It has been far too much the practice in Indian railway construction, when dwelling upon the advantages of avoiding, as far as practicable, future charges for maintenance or renewal, to lose sight of the wasteful outlay which arises from works designed on a scale beyond the real requirements of the traffic. The charges for interest on capital locked up in costly permanent structures are as real as the charges for maintenance, and may very readily be much more onerous. There seems to be no difficulty in accepting the conclusions that railway works for India should, as a rule, be designed so as to suit the probable requirements of the traffic for the first 10 or 12 years, and that whatever is required to meet the growth of the business should be supplied by degrees as the necessity arises, and as the original materials have to be replaced or renewed.

18. The position of the companies, who have only to supply the capital and to *receive* their interest from the Government, whatever be the outlay, and whatever be the results of the undertakings, is strikingly different from that of the Government, which has to *pay* the interest on the capital in full, and to be satisfied with the partial set-off derived from the net profits. To the shareholders it is comparatively unimportant whether the first outlay is strictly confined to what is necessary, or not. Their capital is an investment, the return from

from which is guaranteed under all circumstances; and even in some cases wasteful outlay may be directly advantageous to them, as leading to the creation of a stock which can be sold at a premium. The results of this are plainly exhibited in the exaggerated expenditure on most of the Indian lines; those being among the very worst on which the inducements to economy should have been the greatest. It is our earnest desire to see such a system adopted for the future as will prevent the recurrence of the errors of the past in this respect, and we feel assured that this is among the matters most strongly calling for the serious and early attention of Her Majesty's Government.

19. The considerations which have led us to these conclusions also indicate that, under the conditions in which India is placed as to the provision of capital for railways, if it appears to be financially impossible to carry out railways on the full 5 ft. 6 in. gauge, the Government should not hesitate to accept any other system of construction which will afford a practical means of extending these works. It is quite well known that perfectly useful and satisfactory lines have been carried out on a much narrower gauge, and it would be evidently unreasonable to reject the provision of such railways if they afford evidence of being profitable, while broader gauge lines, from their greater cost, could not be undertaken with financial propriety. These remarks more particularly apply to the more thinly peopled and hilly tracts of the Peninsula and Central India. Across these provinces main lines on the full gauge have already been carried, giving communication between Bombay and Madras on the one side, and Bombay and the North-Western Provinces on the other; and whatever advantage is to be obtained by the possible transfer of the rolling stock of the north to the south of British India, has thus been secured. For the further extension of the network of railways no hesitation should be felt in accepting whatever system of construction is proved to be economically the best suited to each case.

20. We are disposed, as was indicated in our last Despatch on this subject, No. 25, dated 11th March, to consider that too great importance has been attached to the value of uniformity of gauge beyond certain limits. That there are many conveniences in uniformity of gauge is, of course, evident, and in a compact, densely peopled, and highly civilised country like England, differences of gauge have been proved by experience to be inconvenient, and are certainly undesirable. But the inconveniences, where the distances to be gone over are very great, and the centres of population and trade are far apart, as is commonly the case in India, are of a secondary character. For passenger traffic, changes of vehicles, if not frequent, are a very minor objection, and are commonly enforced on passing from the lines of one company to those of another in every country. For goods, changes of vehicles represent a certain additional charge for loading out of one set of waggons into another. This charge will commonly not exceed the cost of transport for 10 miles of railway, and the practical inconvenience is no greater than that which would have been caused by such an addition to the distance over which the goods had to be carried.

21. The advantage obtained from any facilities of construction of locomotives for a broad gauge, must be set off against the corresponding facilities of construction of the road and works for a narrow gauge, and where the traffic is likely to be light, and the cost of construction high in comparison to the net profits, the balance may readily rest with the narrow gauge line.

22. It would always be our wish to conform to the 5ft. 6in. gauge, if the financial objections to it were not insuperable; but we shall hope to receive your approval to our considering it an open question, when the prospects of the returns from any contemplated system of lines are not satisfactory, whether such lines might not be constructed on a narrow gauge, say 3ft. 6in., instead of the ordinary broad Indian gauge.

23. On the first introduction of railways into India, it naturally happened that the engineers of Great Britain were the authorities by whom the character of the lines was fixed. But, in our judgment, experience has incontrovertibly shown that the practice of England was not so well suited to the real wants of India as would have been the practice of less refined and less wealthy communities,

nities, such as the United States of America, where, as in India, great distances have to be overcome, and the importance of economy in the application of capital, and of rapidity of construction, are paramount. The time has come, as we have before suggested, when India should cease to lean exclusively upon English engineers in dealing with its railways, and should commence the regulation of these works in more strict conformity to the special wants and special means of the country itself. But to ensure proper success, the control of these undertakings must be exercised in India, both as regards the essentials of construction and of management. Our administration is, we are satisfied, quite capable of carrying out whatever is required of it in these respects; the duties to be performed would be highly responsible and arduous, but we should enter upon the task of giving effect to the scheme of railway policy which we have now laid before your Grace, in full confidence that it would be brought into operation without difficulty, and that while it would secure the earliest practicable extension of railway communication to all parts of British India, it would place the future systems of management and construction on a thoroughly sound financial basis.

We have, &c.
(signed) *Mayo.*
H. M. Durand.
H. S. Maine.
John Strachey.
R. Temple.

MINUTE by His Excellency Sir *John Lawrence*, Governor General, dated 9th January 1869.

RAILWAY EXTENSION IN INDIA.

IN my Minute of the 16th August 1867, I drew attention to the altered position in which the Government was placed in relation to railway extension by the conclusion virtually adopted by the Secretary of State, that the necessary capital for railway construction could not be obtained without a Government guarantee of interest. I referred to the power which the Government could hence exercise of directing railway extension in the manner it pleased, and I expressed an opinion that the time had come when a general review should be taken of the requirements of the country in respect to railways, with the intention of determining what was the best course to secure their further development. These views were generally assented to by the Council, and early in December instructions were issued to all the local governments, to report their conclusions on the main questions that arise in connection with railway extension.

In the following January, and I believe quite independently of the steps which had been thus taken in India, the Secretary of State addressed a Despatch to the Government of India, embodying opinions as to the expediency of making a comprehensive review of our railway policy, hardly differing from those expressed by me in the Minute I have above referred to. This agreement, that the time has come for considering how the further extension of railways in India may best be brought about, is satisfactory, and may, I hope, lead to the early adoption of practical measures for giving effect to the object in view.

3. It is hardly necessary for me to do more than refer to the value of our railways to the Government and the people as facts universally acknowledged. These works not only add vastly to the available force of the executive power, but greatly conduce to improved administration by expediting communications, and facilitating personal intercourse among the officers charged with the administration, and between these officers and the public. Their effect on the commerce of the country is most conspicuous, and extends, I am led to believe, far beyond the limits commonly ascribed to it. It is a moderate estimate to reckon that the construction of railways has reduced the cost of transport one-half; that is to say, that as much is saved to the public as is paid by them to the

the railways. The saving to the traders and travellers of India, caused by railway transport, may thus not unreasonably be reckoned to amount at the present time to a sum of more than five millions sterling in a year.

4. It is clearly proved, by the experience of the past, that railways in India, if constructed with due regard to economy, and under conditions which fairly justify such undertakings, may be commonly expected to yield returns sufficient to cover the interest on the capital required for them, within a period of from 10 to 15 years from the time of opening their whole length. There are certainly railways which do not now nearly pay the guaranteed interest, and which cannot be expected to do so within any definite period. But it may be generally affirmed that, excepting the lines which it was well known beforehand were not likely to pay, and which were undertaken on grounds of policy, the financial failure of Indian railways will be found to be directly attributable to mistakes or mismanagement in construction, or to a line having been constructed in defiance of what prudence dictated.

5. Nor is this all that can be fairly said of India in respect to railways. It is not to be questioned that, if a more strict economy had been exercised in the construction of some of the lines, they would at the present time have been paying a large dividend, and that, even heavily weighted as some of them are with excessive capital accounts, their ultimate financial prospects are still good.

6. But although it is thus true that, as a whole, we may reasonably expect railways in India to be eventually remunerative if prudently executed, it nevertheless is almost a necessary condition of their construction that, for many years after opening, the net profits will not cover the interest on the capital, and that the Government has to pay a considerable sum to make up the full amount of interest guaranteed. Hence it follows, that the questions likely to cause hesitation in the extension of railways in India refer almost exclusively to the extent to which the public revenues can be made to bear the charge for guaranteed interest, during the first years after the opening of new lines, when the net income is not sufficient to meet that charge. This drain on the revenues will be continued for the whole period during which construction goes on, and until the last made lines become self-supporting. It is evidently only by gradual and steadily maintained action that the wants of so large a country can be supplied, and, taking the most sanguine view of such matters, it seems impossible to reckon the period required for the co-operation of the Government at less than 30 or 40 years, which for all practical purposes must be regarded as an indefinite term. The position, therefore, is not one in which a burthen is to be placed on the revenues for a special purpose for a short time. If this were the case, the propriety of meeting the charge for guaranteed interest by loans would at once be suggested. But for what must practically be regarded as a permanent charge, this resource seems to me inadmissible.

7. There are other reasons which support this conclusion. First, the amount which England can supply for Indian investments without raising the rate of interest is assuredly limited, and experience seems to show that no great reliance can be placed on India itself for the supply of funds; at the same time, the demands for capital on account of railways and irrigation works for many years to come will necessarily be very heavy; hence, it becomes important to give the largest possible contribution from the yearly revenues for these purposes. Second, there are political considerations, to which I have before drawn attention, opposed to the continued increase of a public debt to be held in England, the interest on which would be dependent on the revenues of India. Third, if it be proper to contemplate the formation of a sinking fund in any shape, by help of which the Government would eventually become the proprietor of all Indian railways (and that this should be, I have no sort of doubt), then it is manifestly a wrong policy to add to the debt now to be incurred for railway construction any sum which is not strictly essential. The same arguments apply in every respect to the proposal which has been made by some authorities of adding the guaranteed interest to the capital accounts of our lines.

8. Under these circumstances, the only really safe course for the Government to pursue, in dealing with railway extension in the future, is to estimate the sum which from time to time can be fairly taken from the yearly income of the

country to assist the construction of such works, and then gradually to extend the system of railways in such a manner as to keep the annual charge on the revenues as close as is practically possible to the fixed sum appropriated for the purpose. As the receipts of the older lines increase, and the charge for interest on them diminishes, new lines would be brought forward, so as to keep up the aggregate contribution in the form of interest to the proper amount. This view has been assented to by the Secretary of State, and it seems not open to question. Blindly to enter upon an indefinite scheme of railway extension, without considering the financial results of so doing, merely trusting to the probable growth of the Indian revenues to make good all necessary charges for interest, is a course which has been advocated, but which cannot be seriously discussed by those responsible for the finances of the country. To the full extent to which we are satisfied, after due inquiry, that it is from time to time safe for us to go, let us go. But no progress can be real or permanent which is not consistent with a healthy condition of the finances.

9. On examining the conditions under which the State is now called upon to make good a part of the guaranteed interest on Indian railway capital, it at once becomes clear that the liability of the Government to a permanent and probably increasing charge on the revenues is much increased by the arrangement under which the Government can derive no profit whatever from the most successful railway, while it bears the entire loss of those which do not pay. There is no set-off of profit against loss in the Government share of these transactions. The whole profit goes to the companies, and the whole loss to the Government. It therefore follows, almost as a positive certainty, that there will be a permanent charge thrown on the Government for guaranteed interest so long as the present system continues.

10. I am thus led to ask what are the reasons which should induce the Government to accept the position in which it is placed by the present system of railway construction, under which the entire risk and actual loss is borne by the State, while the whole of any eventual profits is enjoyed by the companies to whom the railways are conceded? Can it be really essential for satisfactory progress that such a distribution of the losses and gains should continue, and is there any sufficient ground for placing the State in so false a financial relation to the constructors of railways as that under which the former must bear all loss, and cannot possibly obtain a set-off by any gain? These questions involve the discussion of the character of the agreements which have till now been entered into with companies for the construction of railways in India, and the policy under which these works are entrusted to companies, in preference to being executed by the direct agency of the State?

11. It is often objected to the prosecution of public works by the Government, that it is not proper for the Government to interfere with private enterprise (which is said to be the proper agency by which works like railways should be carried out), and that the Government should not take advantage of its position to prevent the investment of capital by private persons in large public works. Now, the Government of India has for several years been striving to induce capitalists to undertake the construction of railways in India at their own risk, and on their responsibility, with a minimum of Government interference. But the attempt has entirely failed, and it has become obvious that no capital can be obtained for such undertakings otherwise than under a guarantee of interest, fully equal to that which the Government would have to pay if it borrowed directly on its own account. It is an abuse of language to describe, as an interference with private enterprise, what is only a refusal to support private speculators and to guarantee them from all possible loss by the credit of the State, or to allege that the investment of capital by private persons is hindered by the Government executing works, when private persons refuse to do so at their own risk. To speak of the Government as though it were a speculating corporation, desiring to benefit itself at the expense of the community, or any section of it, is an absurdity. The Government is bound to protect the interests of the public, and it has to consider what is the proper course to follow in carrying out railways, having regard to the true interests of the people of India. The question now before us is, whether it is reasonable, or consistent with the true interests of India, to continue a system under which the revenues have to bear the whole

risk

risk and loss, and can derive no direct benefit from railway construction, in preference to one under which, with a risk certainly no greater, and probably much reduced, the whole of the direct profits can be added to the public revenues, and made available for reducing taxation, or preventing the imposition of new burdens.

12. To the English investor of capital it certainly is a matter of very small importance whether the Government of India induces him to supply money under the name of guaranteed railway capital, or directly borrows from him by an ordinary loan. A reference to the price lists of Indian Government securities and railway stocks will at once prove the truth of this. The 5 per cent. stock of the Secretary of State, the interest of which is payable in London from the revenues of India, is quoted, 28th November 1868, at about 116. The 5 per cent. stock of the East Indian Railway, with interest payable in London, stood at the same time at 109. The 5 per cent. debentures, the interest of which is payable in Calcutta, stood at 106. It is manifest that the 5 per cent. Government Stock raised by the Secretary of State under Act of Parliament is more highly valued in London than the best railway stock, though so far as I am able to perceive, the security is identical. In Calcutta the best quotation of 5 per cent. debentures, those to run 15 years, is now 109, or the same as the East Indian railway stock in London. In the face of such figures, it seems impossible to say that there is any appreciable preference given to investments in railway stock.

13. The Secretary of State, in paras. 10 to 17 of his Despatch, No. 90, dated 24th November last, in which he discusses my minute before referred to, practically admits that Indian railways do not offer a very attractive form of investment to English capitalists, when he affirms that, in order to secure the favour of English investors, the Government must make various concessions to companies on matters in respect to which I, and the whole of my colleagues in the Government of India, had expressed opinions that greater stringency was required to secure satisfactory results in the construction and working of Indian railways. Admitting fully that the Secretary of State is likely to have better opportunities of judging of the temper of the London money market than we can have here, it is, I think, but reasonable to claim for the Executive Government in India the advantage in judging of what is, and what is not, conducive to economy and satisfactory working of the railways themselves. The issue thus raised is, whether the agency of the companies affords any such special public convenience or advantage as to justify the Government in giving them terms which are alike unsatisfactory in a financial and an administrative point of view.

14. The only possible reply to this question seems to be in the negative. There is every reason to think that the Government would have at least as great facilities in raising directly by ordinary loans all money needed for railway construction as it has in obtaining subscriptions to the capital of guaranteed companies, while the former system of obtaining the money would leave the Government entirely unfettered in every subsequent process connected with construction and management of the lines, could cause no greater liability for interest, would almost certainly lead to a reduction of charge in consequence of greater economy, and lastly, would give to the revenues of India the full advantage of any eventual surplus income after discharging the interest on the borrowed capital.

15. The only doubt that could be thrown on the expediency of direct Government action in the construction of railways, would be the presumed incapacity of the Government to carry out or manage these undertakings. The Government of India has not yet done it, and therefore it is impossible to adduce direct proof in support of my views. But it seems to me a matter on which there is in truth no room for doubt if it be viewed dispassionately. The history of the actual operations of railway companies in India gives illustrations of management as bad and extravagant as anything that the strongest opponent of Government agency could suggest as likely to result from that system. Some of the best constructed and most economical Indian lines have been carried out entirely under departmental management, in a manner which differs in no respect from that commonly followed on Government works. Many of the very largest rail-

way works have also thus been carried out in all parts of India. So far as contractors' agency is desirable, it would be quite as much open to a Government management as to a company; and the instances of flagrant failures of contractors under the Indian companies are so notorious as to leave no ground for thinking that, in this respect, the Government could manage worse. With reference to the Indian agency, both of engineers and other officers, it may quite safely be said that the Government, under a reasonable system, could, to say the least of it, secure as great ability with an equal outlay. I have not heard of any useful independent action taken in relation to Indian railways by the London Boards, which would be lost under a well arranged system of Government management. In no single respect can I see that less efficiency is likely to be secured under direct Government control than under joint stock companies having their boards in London.

16. Whatever opinions may be entertained on the relative merits of the two sorts of management on other points, it cannot, I conceive, be seriously denied by anyone that direct Government management is likely to be more economical than that of companies, and it was mainly on this ground that I understand this Government to have determined to carry out the railway from Lahore towards Peshawur by its own engineers. Of this line it may be almost certainly affirmed that it cannot possibly pay the interest on the capital required, within any time that can be named. Hence it becomes specially important to secure the strictest economy, and therefore the Government desires to retain the whole concern in its own hands.

17. The Secretary of State, in his Despatch, No. 3, dated 16th January 1868, assents to the Government carrying out by its own agency what he has termed "political" lines, while he reserves what he calls "commercial" lines for guaranteed companies. After a careful perusal of what he has said on this matter, I am unable to see that there is any other distinction between these proposed classes of railway, than that the political are those which are not likely to pay, and the commercial those which are likely to pay, a dividend in excess of the ordinary rate of interest. The Government, therefore, is to take up all the unprofitable lines for itself, and give all the profitable lines to private speculators, carefully guarding them, however, at the expense of the State, against any possible loss, whether due to their own negligence or not. Stated thus nakedly, the position in which the Government would be placed by such arrangement appears in its true character. The worst features of the present system would remain, and the Government, though relieved from some financial loss, would soon find itself with authority still weaker than that which it now feels to be insufficient. It would suffer in reputation from the results of the management of its own lines of railway, which would necessarily be everywhere unsuccessful. The true cause of this would certainly be overlooked, and the discredit of financial failure would be used as a weapon against it in all its relations with the companies.

18. The specific reason assigned by the Secretary of State in this Despatch for the Government undertaking the unprofitable lines is that, if this were not done, it might lead to the market being weighed down by railway securities, not likely to rise to a premium. In the interest of the companies, the force of this argument is of course evident, and if the Government had any sufficient reason for desiring to improve the condition of the companies at the expense of the revenues of India, there might be nothing further to say on the subject. But I am not able to see that there can be any advantage to India in sustaining the value of the guaranteed railway stock by transferring, to be borne by the general revenue, charges which might otherwise have been met by the surplus railway profits, and by handing those profits over to the holders of the guarantee stock, who have earned them neither by enterprise nor self sacrifice. If there were any reason to suppose that the intervention of the guaranteed companies is essential, either for raising the money required for the extension of railways in India, or for executing the works, these concessions might be justified. But, so far as I am able to judge, the facts are directly opposed to any such conclusion. The experience of 20 years seems to show sufficiently that there is no reason whatever to expect that the Government can derive any financial advantage from the adoption of the system of guaranteed companies in supplying the capital

capital required for railways, unless such company actually execute railways, and work them very considerably cheaper than the Government could do through its own agency. My own very decided opinion on this point is, that the direct agency of Government would certainly be more economical than that of the railway companies, and that there would, in almost every respect, be advantage to the State financially, and therefore to the community of India at large, if the Government were to determine to carry out railways hereafter through its own engineers, with money directly borrowed in the market for the purpose.

19. It is not to be questioned that the existing machinery of the Public Works Department is not suitable for the prosecution of railways on a large scale. But I see no reason for anticipating difficulty in making arrangements which should be perfectly satisfactory and efficacious. I feel confident that there would be complete unanimity on this subject among the public works officers of the Government most to be trusted. The Government is already making arrangements for the commencement of the railway towards Peshawur, which, with suitable expansion, would readily suffice to secure the prosecution of like works elsewhere. There are enough of our own officers in the chief provinces of India conversant with railway business, and having local experience, to ensure the satisfactory working of a special staff of railway engineers, &c., under direct Government control. No objection which may be taken to the present public works system can properly apply in this discussion, the operations which are now carried out by this department being of a character requiring a totally different treatment. The outlay on public works in India has avowedly been treated as mainly dependent on the existence of a surplus revenue, which can usefully be applied in this way so long as it exists, but which immediately becomes available for other purposes if pressure arises. It is unreasonable to think that, if the Government deliberately borrowed money specially for railway construction, the works would be stopped on every occasion of temporary financial difficulty, as has been alleged.

20. There is no reason whatever for supposing that, in times of serious political danger or war, the power of companies to obtain money for investments in India would be greater than that of the Government; on the contrary, the credit of the Government under such circumstances must necessarily be the better of the two. So far as my recollection serves me, one of the most important advantages which it was originally considered that companies would have over the Government in railway construction was, that the companies would have greater facilities for raising money, and could be better relied upon to carry out the works vigorously and without stoppage in time of financial difficulty. Recent experience has shown that this is very far from having been the case. After the last monetary crisis in England, the Government was obliged to lend money to several of the companies to admit of the necessary capital being provided; and the superior credit of the Government, and its power of meeting difficulties of this description, were most strikingly exhibited. So long as the actual liability to pay the interest falls upon the State, as would be the case whether money were provided by loan directly or as guaranteed capital, it is evident that the standard which regulates the rate of interest that must be paid to command money will be the probable solvency of the Government. The intervention of a company could not add to the security in the smallest degree, nor to the facility of obtaining money, nor would the Government thereby be freed from the pressure caused by the necessity of paying the yearly interest. All presumed financial advantage in the arrangement with the companies I consider, therefore, to be entirely fallacious.

21. Another fallacy may be noticed which has been introduced into these discussions. It has been said that there is direct advantage to the State from the arrangement under which it advances money in the form of interest to the companies in the earlier years of railways, which is returned as the lines begin to yield a profit in excess of the fixed rate of interest, and that this is a convenient form of saving money. But it is plain that if there be any advantage in this it applies to the case of direct Government agency just as much as in the case of the companies, with this important difference, that on the present plan

only half the surplus net income in excess of the fixed rate of interest comes to the Government, whereas, under direct Government agency, the whole profits would so be received by Government. At the present time the sum advanced for guaranteed interest is about 13½ millions. Before this can be repaid by the companies, the profits in excess of the guaranteed interest must be 27 millions, the companies themselves taking half the excess, and so greatly deferring the time when the debt could be cleared off, beyond what would have been possible if the lines had been directly under Government. I would add also, that it is a serious mistake to think that any repayment of the guaranteed interest worth mentioning has yet begun, or that there is any present prospect of such repayments being made to an extent which would sensibly affect the public income.

22. But it is not necessary for me to discuss this part of the question at greater length. I have on former occasions stated my opinion that, for the future, railways should, as far as is consistent with actual and implied engagements with the existing companies, be carried out by the Government itself, and my later experience and reflection have fortified that opinion. My objections to the present footing on which the railway companies stand in relation to the Government have been fully explained in my former minute, and, with one exception, I need not revert to them in detail. It will suffice to say generally, that if it be determined to continue the construction of railways through companies, all the precautions and checks which I before recommended still seem to me to be necessary and proper, and appear to have been misapprehended in several respects by the Secretary of State in his Despatch of the 24th November, and that in proportion as the probability of a line being remunerative is great, in the same proportion is it reasonable for the Government to insist on its own terms being accepted. The one point to which I will again call attention is, that there are political reasons of serious weight, which should lead us to be very careful how we attempt to carry out railways in the states of the foreign princes of India through the agency of companies. These reasons apply, in my judgment, with special force to the States of Rajpootana and Hyderabad. The Secretary of State has not alluded to my remarks on this subject, which, however, seems to me of so great importance as to make me again request special attention to it.

23. Whatever be the decision as to the agency by which the actual works are to be constructed and managed, some improved system of check and review of the financial results of our railway undertakings is assuredly necessary. As I have before said, future progress in railway extension will directly depend on the continued appropriation of a determinate annual grant from the revenues, to cover the interest on the capital employed until the lines become sufficiently productive to pay the whole amount. To secure the best practicable application of the limited sum that can be granted, having regard to the general condition of the finances, it will be essential to keep a constant watch on the whole series of undertakings and on their progress, both material and financial. The manifest object to be attained, is the greatest general advantage to the country in the form of railway transport in the shortest time, through the annual expenditure of a certain fixed sum of money. Where the demands must, in the nature of the case, so greatly exceed the power to comply with them at once, it becomes doubly necessary for the controlling financial authority to be watchful, and to act on a well-arranged plan, carefully considered beforehand. I can conceive nothing more completely opposed to such a system of control and guidance of railway construction than that which, as a fact, has existed till the present time; and a very little examination will, I think, satisfy most people that this is a correct view of the case.

24. The ultimate test of the success of any system must be its results. Now, going back only to 1865, I find that in that year the estimated sum required to complete the authorised lines, aggregating 4,900 miles in length, was 77,000,000 *l.* At the present time the estimate has already reached 97,000,000 *l.* for a length of 5,859 miles, and the actual amount needed is more likely to be 100 millions. Thus, with an increased sanctioned length of 959 miles, the estimate for which is 9,500,000 *l.*, there has been an addition to the

the probable outlay on the old lines of about 10 millions, and perhaps as much as 13 millions, without any extension of their actual length. If the comparison had been made with an earlier period, the result would have been still more unsatisfactory as regards the growth of the guaranteed capital, without any commensurate extension of the mileage of railways for the country at large, and with a tendency to stationary traffic returns.

25. It may be replied to these comments, that the increased outlay on the old lines was necessary, and that by help of it improved conveniences are, in fact, given, or will be given to the country, and to some extent this may, no doubt, be true. But the essential matter is not this. What is necessary is to see that the application of new capital shall be the very best possible, taking into consideration not only the old lines, but the demands for altogether new ones also. For my own part, on now looking back, I think there can be little doubt that a very considerable proportion of the capital which has, in fact, been applied to the older lines in the last five or six years might, with greater advantage, have been given for the commencement of new lines. The experience of India in respect to the growth of railway capital is thus beginning to teach the same lesson that has been taught on a gigantic scale in England, namely, the urgent necessity for resisting the tendency to incur additional capital outlay, without creating clear additional paying power in return. The enormous and ruinous extent to which the capital accounts of many English companies have become inflated has been for some time past the theme of public discussion. If this can have happened in England, under conditions best suited to secure economical management, how far greater is the danger for India, where all ordinary restraints are removed by the grant of an absolute guarantee of interest, which is now well known to be, in fact, subject to no limitation whatever. I regard this danger with great concern, both in relation to the prospects of existing lines, and our hopes of extending them. If the Government is to avoid it, some means must be found for putting an effectual stop to the insidious growth of the capital of the old lines.

26. Nothing is further from my intention than to impute blame to the authorities under whom what I have above noticed has been brought about. I am myself one of them, and there is no question that what has been done in these matters has been done with the best motives, and with every desire to accomplish the best results. But under the system now in force it is impossible that the really essential considerations which affect railway extension can be weighed in the only manner in which success can be secured. To attain this, what seems to be required is, *first*, a careful annual review of the whole subject, and, *second*, the exercise of a more complete control over railway financial arrangements by the Executive Government in India.

27. I am fully impressed with the propriety, and even the necessity, of placing in the hands of the Secretary of State for India the most complete control over the administration of India in all its branches, and I hope that nothing that I am now saying will be considered as implying a desire to weaken that control. But the power exercised in England over affairs actually conducted in India should surely be essentially one of control, and the initiation and practical direction of measures should, as far as possible, remain in the hands of the Indian Government. I cannot think that it is conducive to good administration to remove from the cognizance of the local authorities, for the purpose of placing it in the hands of the Secretary of State, the principal management of transactions which already involve an outlay of 100 millions sterling, and must probably extend to double that sum, and which are entirely carried out for India, and at the charge of the Indian revenues. I must ask permission to state my opinion in plain language on this very important point, —to the effect, that the true interests of India demand that the Secretary of State's direct action in relation to Indian railways should be exercised only so far as is essential for the prompt despatch of that part of the business connected with them which is necessarily carried out in England; and that, beyond this, his intervention should, as a rule, be limited to the control of the Indian authorities, on whom should be placed the same complete responsibility

for railway management, both in respect to administration and finance, as is placed on them in all other branches of public business. I feel in the strongest manner that real success in the economical and efficient management and extension of railways in India can only be attained by the frank adoption of this policy.

28. I will next proceed to consider what is the probable sum that could be appropriated from the Indian revenues to promote railway construction in the future, and what would be the corresponding practical results in the shape of new lines constructed, which we might fairly look for under a satisfactory system of administration. Looking back to the actual expenditure of the last eight years, I find that in 1861-62 and 1862-63 the aggregate charge on the revenues of India on account of railways was a little in excess of two millions sterling, of which about 1½ millions was for guaranteed interest, and the rest for loss by exchange, land, and Government supervision. In the present year and last year, the corrected estimates show a total of about 1½ millions, of which about 1¼ millions was for interest. Considering that there has been an important growth of the revenue in the interval between 1861 and the present time, I think that it would be quite reasonable and practicable to assign two millions as the yearly sum to be appropriated to aid railway extension, and it might, perhaps, be possible to increase this amount somewhat if the growth of the revenues continues. It will, however, be the best plan to reckon two millions as the available sum, and it will be easy to modify the conclusions based on this hypothesis, so as to suit any other sum, either somewhat larger or somewhat smaller.

29. Reviewing the actual results of railway construction up to the present time, I find as follows:

The total capital expended to the end of 1868 was about 78 millions.

In the first five years, including 1854, the aggregate outlay was 3¼ millions, and since then the average has been, say, five millions yearly.

Of the above sums, about two-fifths have been spent in England, and three-fifths in India.

The average number of miles opened to the end of 1860 was 120 yearly, omitting the first four years, in which nothing was opened; since that time, about 400 miles yearly; the total length now open being nearly 4,000 miles. The general average on 15 years is 270 miles yearly.

The aggregate net receipts in 15 years, from 1854 to 1868, may be called 12 millions, and the gross payments on account of guaranteed interest 25½ millions, leaving a net charge of about 13½ millions.

The average estimated cost per mile of railway under guarantee is 17,000 *l.*

30. From this the following deductions may be made:

That an annual outlay of five millions of capital will, on an average, produce yearly 300 miles of railway, of an average cost of 17,000 *l.* per mile.

That, with interest at five per cent., the maximum charge on this account, after deducting net profits, will not exceed 1½ millions.

That the average charge for interest on a prolonged period will be about one million.

That the net profits in the 15th year after the first sections of railway are opened, or the 20th year after the commencement of operations, will be about 600*l.* per mile per annum on the whole length then open.

That the growth of the net profits will be fairly represented by taking them at 100*l.* per mile in the first year, 150*l.* in the fifth year, 300*l.* in the tenth year, and 600*l.* in the fifteenth year, reckoning in each case from the year in which the first sections were opened, on the whole length open in each year.

31. The

31. The above figures apply to railways costing on the average 17,000*l.* per mile. If we could reduce the cost, as certainly should be done, to an average of 12,000*l.* per mile, it might be presumed that the interest charges would be reduced to two-thirds of the above; and if 8,000*l.* per mile could be attained, one-half only of the above charge for interest would be required; and, of course, with the same outlay, a corresponding increase of miles of railway opened would be secured.

32. To place this question in a more definite shape, I have had drawn out a Table to show the probable results of proceeding with the intention of constructing 300 miles of new railway a year on a standard of outlay of 12,000*l.* per mile, which would require a yearly outlay of capital averaging $3\frac{3}{4}$ millions sterling. It has been assumed that the net payment for guaranteed interest on the lines now open or under construction amounts at the present time to one million sterling, and that this will be reduced to 250,000*l.* in 10 years, and to 150,000*l.* in 20 years. This is equivalent to taking the capital at 100 millions, and the average rate of net profit at 970*l.* per mile per annum, or 19*l.* per week at the end of 20 years, which is the present rate of the East Indian line. The interest on the new capital is reckoned at five per cent. on a sum increasing yearly by $3\frac{3}{4}$ millions. The average net profits of the new lines opened have been taken to begin with 100*l.* per mile, or less than 2*l.* per week in the fifth year, when the first section of the series would be opened, gradually increasing to 600*l.*, or about 12*l.* per week in the 20th year. This rate of net profit is what has been actually realised under circumstances less favourable than those under which the new lines will be brought into operation.

TABLE to show the probable Results of a Yearly Investment of $3\frac{3}{4}$ millions in Railways estimated to cost 12,000 *l.* per Mile.

Number of Year.	Net Interest payable on Existing Railways.	New Capital invested to end of Year.	Yearly Interest at Five per Cent.	Average Net Earnings per Mile for Total Length Open.	Total Net Earnings of all the New Lines Open.	Net Charge for Interest on New Lines.	Total Charge for Old and New Lines.	Miles of New Railway Open.
	£.	£.	£.	£.	£.	£.	£.	*Miles.*
1	1,000,000	3,750,000	187,500	- -	- -	187,500	1,187,500	—
2	925,000	7,500,000	375,000	- -	- -	375,000	1,300,000	—
3	850,000	11,250,000	562,500	- -	- -	562,500	1,412,500	—
4	775,000	15,000,000	750,000	- -	- -	750,000	1,525,000	—
5	700,000	18,750,000	937,500	100	30,000	907,500	1,607,500	300
6	625,000	22,500,000	1,125,000	110	66,000	1,059,000	1,684,000	600
7	550,000	26,250,000	1,312,500	120	108,000	1,204,500	1,754,500	900
8	475,000	30,000,000	1,500,000	130	156,000	1,344,000	1,819,000	1,200
9	400,000	33,750,000	1,687,500	150	225,000	1,462,500	1,862,500	1,500
10	325,000	37,500,000	1,875,000	175	315,000	1,560,000	1,885,000	1,800
11	250,000	41,250,000	2,062,500	200	420,000	1,642,500	1,892,500	2,100
12	240,000	45,000,000	2,250,000	225	540,000	1,710,000	1,950,000	2,400
13	230,000	48,750,000	2,437,500	250	675,000	1,762,500	1,992,500	2,700
14	220,000	52,500,000	2,625,000	300	900,000	1,725,000	1,945,000	3,000
15	210,000	56,250,000	2,812,500	350	1,155,000	1,657,500	1,867,500	3,300
16	200,000	60,000,000	3,000,000	400	1,440,000	1,560,000	1,760,000	3,600
17	190,000	63,750,000	3,187,500	450	1,750,000	1,437,500	1,627,500	3,900
18	180,000	67,500,000	3,375,000	500	2,100,000	1,275,000	1,455,000	4,200
19	170,000	71,250,000	3,562,500	550	2,475,000	1,087,500	1,257,500	4,500
20	160,000	75,000,000	3,750,000	600	2,880,000	870,000	1,030,000	4,800

33. In the above calculation the net receipts of the new lines have been purposely somewhat under-estimated in the earlier years. The old lines were opened under far less favourable conditions for the rapid expansion of the traffic, and it is quite safe to consider that we here have an outside estimate of the charge which the revenues would have to bear under such an arrangement as is supposed. This maximum, it will be seen, just falls short of two millions, including the charge for the old lines, so that it does not differ in an important degree from the maximum charge in past years, if we include the loss by exchange on the capital, which will not henceforth have to be paid by the Government. A total grant from the revenues of two millions a year would hence, in all probability, more than cover the actual contribution needed. The actual average net profits per mile in 1866, which was the 13th year from the opening of the first lines, amounted to a little more than 600*l.* per annum, or say 12*l.* per week per mile. In the above figures, in the corresponding year,

year, the net profit on the new lines is taken at 500 *l.* per annum, or say 10*l.* per week per mile.

34. As these calculations, and indeed all anticipations as to the future of railways in India, essentially depend on the probable income of the lines, it will be convenient if I here show what is the actual position of our Indian railways compared to that of railways in other parts of the world, where they have been longer in operation, or where they have been constructed in countries in a more advanced state of civilization :—

	Gross Receipts per Week per Mile. £.		Gross Receipts per Week per Mile. £.
Average of 27 lines, England	64	Average of 4 lines, South America	18
„ 5 „ Scotland	26	„ 1 line, Mauritius	31
„ 9 „ Wales	33	„ 2 lines, Australia	39
„ 17 „ Ireland	17	„ 9 „ India	26
„ 6 „ France	56	Best line in India	37
„ 4 „ Belgium	59	„ in England (excluding Metropolitan lines)	138
„ 2 „ Spain	26	Best line having terminus at London (excluding Metropolitan lines)	88
„ 1 line, Norway	30	Best line in France	85
„ 2 lines, Austria	70	„ in Belgium	103
„ 2 „ Italy	21		
„ 3 „ Canada	34		

It may be estimated on the average of all the lines that the net profits are about one-half of the gross receipts. The rates which have been taken in the table in para. 32 will be equivalent to assuming that 20 years hence the average gross receipts of all the Indian lines then open will be 30 *l.* per week per mile, which is only an advance of 4 *l.* per week on the actual rate. This is so moderate an estimate, that I think it will be generally conceded that the liabilities have not been understated in these calculations, and that we may fairly anticipate a better result in fact.

35. It would hence appear that if the cost of railways can be kept down so as not to exceed on an average 12,000 *l.* per mile, an average total annual charge on the revenues for 20 years, at a rate probably not exceeding 1½ millions, will secure an addition of 300 miles of railway every year. In other words, that a charge on the revenues of about 5,000 *l.* yearly will be required for each mile of railway, taking a rate of net profits below which it is not likely that the actual results can fall. Further, it appears that this extension of our railways may be accomplished without extraordinary or additional strain on the finances; and if the works are carried out by the direct agency of the State, it is far from impossible that a considerably better result could be obtained. I infer, therefore, that it is nothing more than strictly prudent to make our arrangements at once for an extension of 5,000 or 6,000 miles of railway, the construction of which should be spread over the next 15 or 20 years.

36. After a good deal of careful consideration, I am led to the conclusion that the additions now to be made to the existing system of Indian railways should, in their general design, be laid out on principles not greatly different from those according to which the first scheme of lines framed by Lord Dalhousie. I mean, that, considering the great extent of country which still receives no benefit from railways, our first aim should be to fill in a secondary series of subsidiary main lines, always basing them on the old lines, and laying them out with careful attention to the importance of making them form a consistent whole, on which hereafter further minor branch and cross-connecting lines may be engrafted. It is probable that persons having local interests may advocate the early prosecution of lines of merely local advantage, and that efforts will be made to divert the means at our disposal from the creation of new lines to increasing the conveniences of the old lines, and such a policy may be supported under colour of the probable financial advantage to be obtained by extending and improving existing railways, and supplementing them by branches. But I earnestly hope that this question may be viewed in a really broad and impartial manner, and that the great paramount interests of British India, as a whole, may not be sacrificed to any other less weighty considerations. I feel assured that the course which is really the most conducive to the progress of the country as a whole, will also be the best financially, and that, if the task of extending Indian railways is taken up and dealt with steadily and with earnestness, there is every prospect of the present generation witnessing the

the completion of such a network of railways as shall very fairly provide for all the main wants of every important part of British India without serious strain on the finances. On the other hand, if we are influenced by personal or merely local interests, or by exaggerated ideas of convenience and refinement, and aim at high speed, or otherwise are led astray by considerations not really applicable to a country like India, we shall find that the progress we desire is not secured, and that the financial prospects of our lines become worse and worse the longer we go on.

37. Holding these opinions, it appears to me that the proper course to follow in preparing for a gradual and systematic extension of railways in India, is first to ascertain what are the new lines most likely to be generally advantageous to the country as a whole in its present condition; and having sketched them out, on a plan which shall secure their providing in the best way possible for the principal cross lines of communication, to undertake their execution methodically, and with a view to the earliest possible completion of continuous extensions of the lines already open. It will not, I think, be possible to determine in a satisfactory way what lines we should first take up, until we have such a general conception of the approximate magnitude of the whole operation we desire to complete, and of the various claims which the requirements of the several parts of the empire have for our consideration.

38. I need not discuss in any detail the specific proposals of the local Governments in reply to the call made upon them. To do so would extend this paper to an inconvenient length. I shall, therefore, confine myself to the briefest possible statement of the conclusions to which I have come as to the apparent wants of the several provinces viewed in the broad manner that I have described, after giving my best attention to the whole of the facts bearing on the subject in hand. It should be clearly understood that in doing this I shall not now attempt to make any precise estimate of the relative urgency of the lines mentioned. My first object is to obtain as complete a view as possible of the eventual wants of India as a whole, and having done this, the question of the order of execution may properly be touched upon.

39. *Sindh.*—The completion of the communication between Kurrachee and Mooltan, with a line on the other side of the Indus to that occupied by the main line, form one system of lines that seems desirable. A junction with the Bombay lines, from Kotree *viâ* Luckput through Cutch, and thence to Ahmedabad, must also be contemplated.

Punjab.—The line from Lahore to Peshawur, with the main trunk railway from Mooltan to Delhi, and a few branches perhaps to Puttialla, and to Kalka for the large military stations in the hills in that quarter, seem to complete all that is necessary for this province.

North-Western Provinces and Oudh.—The lines which seem likely to be most required are the following:—The main line of the East Indian Railway already constructed from Buxar to Delhi, with the branch to Agra, and its continuation to Saharunpoor; the Oudh and Rohilkhund system, as already settled, taking up the country between the Ganges and Gogra, with cross communications to Benares, between Lucknow and Cawnpoor, between Rohilkhund and Allygurh, between Moradabad and the Kumaon hills, and with an extension to Saharunpoor. Of new lines, a branch from Allygurh to Muttra, and another to Furruckabad, would seem to do all that is needed for the Gangetic Doab.

Rajpootana, Central India, and Bundelkhund.—The main line of communication between Upper India and Bombay should, I think, be taken from Delhi by Rewaree to Jaipoor, Ajmeer, Neemuch, Rutlam, and Indore, communicating with the Great Indian Peninsula line on the Nerbudda. A cross line from Neemuch to Baroda will also be desirable, and a bifurcation at the upper end of the line from the vicinity of Ulwa to Bhurtpoor and Agra. A line from Agra to Gwalior and on to Jhansee, and thence through Banda, and so joining the Jubbulpoor line opposite Kallinjur, may also be contemplated. Also a line from Indore by Bhopal to Saugor, and a junction between Jhansee, Saugor, and the Great Indian Peninsula Railway, on the Nerbudda below Jubbulpoor. The Jubbulpoor line and the Nerbudda section of the Great Indian Peninsula line closes in this part of the series.

Bengal.—For North-Western Bengal, we already have the East Indian line, with the new chord line. This should be supplemented by a main line extend-

ing through the districts north of the Ganges, probably from Colgong by Tirhoot into Goruckpoor, and so joining the Oudh lines, with suitable cross communications. For Northern Bengal an extension of the Eastern Bengal line by Malda and Dinagepoor to the foot of the hills below Darjeeling seems called for. Extensions of the same line to Dacca, and thence to Chittagong, to Mymensing, and eventually, perhaps, to Sylhet, and along the Brahmapootra into Assam should be contemplated. Branches to Furreedpoor, Moorshedabad, and Jessore may also be included.

East Coast of Peninsula.—An important line will be that through Midnapoor and Balasore to Cuttack, and thence along the coast to join the Madras Railway.

Madras.—The completion of the existing main lines of the Madras Railway, with the coast line last noticed, will open out the northern part of this Presidency. For the south, a coast line serving Pondicherry, and communicating with the rich district of Tanjore, and thence with Madura and Tinnevelly, will be needed.

West Coast of Peninsula.—The opening of a line from Beypoor, southwards to Cochin and Trivandrum, with a junction with the Tinnevelly line, suggests itself. Also an extension northwards by Calicut to Cannanore, Mangalore, and Carwar, and thence *viâ* Goa to Bombay.

Mysore.—A line might be carried from Bangalore towards Hassan, and thence on to join the Bellary and Dharwar line.

Hyderabad and the Deccan.—The line from Koolburga to Hyderabad will be one of those to receive early attention. From Hyderabad to Bezwarrah, on the east coast line, and to Nagpoor, lines may also be contemplated. The junction between the two branches of the Great Indian Peninsula Railway from Munmar *viâ* Ahmednuggur, to Dhoond, has already been discussed. A line from Patus, on the Great Indian Peninsula Railway, to Kolapoor, Belgaum, and Dharwar, and thence communicating with Bellary to the east, and with Carwar to the south, would be needed to complete the network in these districts.

Central Provinces.—The Nagpoor and Jubbulpoor branches of the Great Indian Peninsula Railway already provide for the chief wants of this territory. A line, however, should be contemplated going to the eastward to Raipoor, and thence, perhaps having a continuation down the Mahanuddy to Cuttack and the East Coast Railway.

Bombay.—The existing railways, with those that have already been mentioned in connection with the Deccan and the west coast, nearly complete all that seem called for. Some provision, however, should be made for adding a few branches to the lines now open, and for extending railways into Western Guzerat and Kattywar, and connecting them with the Bombay and Baroda line, as well as giving direct railway communication from the interior to the chief local ports.

Burmah.—A main line along the Irrawaddy, from Rangoon to Prome, should be added to the above list.

40. At first this enumeration of the lines of railway which I think desirable for British India so soon as the means of constructing them shall be available, may seem to be leading us astray from a serious and practical way of viewing the question of railway extension. But I think that, on more careful consideration, such an impression will be seen to be without foundation. The aggregate length of the whole of the lines which I have included in the above review hardly exceeds 15,000 miles, including the lines constructed, or already determined on and partly begun, which together may be 5,000 miles. Therefore we arrive at the conclusion, which I think must strike every one as eminently satisfactory, that, including all possible main or secondary lines that can be desired (for, I may almost say that I have included all such lines), there only remain 10,000 miles to execute, or double what has already been accomplished. At the rate which experience shows to be quite within our command, 300 miles a year, it would hardly take more than 30 years to complete the whole series. Considering the unusual difficulties which necessarily beset the introduction of railway construction in India, and the constantly increased conveniences for the despatch of materials and rolling-stock, which the continued extension of the lines will give, it seems reasonable to expect that progress in the future may, under any circumstances, be more rapid than it has been till now. If, by improved management, greater economy is secured, and the resources of the State applicable to railway

railway construction are fostered in the manner that I have suggested, it seems to me quite reasonable to hope that such a system of railways as I have just sketched out, may be in actual operation before the expiry of 20 years from the present time. To effect such a result is surely of the very highest importance, not only to India, but to England also; and to secure its realisation is an object worthy of the most earnest attention of the rulers of this country.

41. A few words may be said as to the order in which the actual execution of such lines of railway may best be set about. I have annexed to this Minute a tabular statement showing approximately the manner in which I should suggest that the work should be taken up. Of course this can only serve to indicate the general conclusions which at present commend themselves to me, and it is not put forward with the intention of claiming for it any special value. It will be readily understood that what I regard as essential is, that some specific pre-arranged general plan of operations shall be fairly and consistently acted upon; it is of altogether secondary importance whether or not the particular plan which I think the best be adopted. Of course the immediate practical results of what I propose would be the definite commencement of a certain moderate length of railway; and when the time came for further extensions, the whole subject would be liable to re-consideration, and it may be that cause would be found for revising former opinions. What I deprecate is further desultory and, so to speak, aimless action. What I desire is steady and persevering progress towards the completion of a definite scheme for giving railways to all parts of India.

42. There is only one other point to which I wish to refer. If there is one thing which comes out in more prominent relief than another in connection with railway construction in all parts of the world, it is this, that those lines are financially successful in which the capital accounts are kept down to a low amount, and those are unsuccessful in which this has not been accomplished. The lesson we should learn from this is, that the character of the line, and the amount of expenditure upon it, should be regulated as far as possible by a proper consideration of the probable returns, and not more than is essential by any pre-conceived ideas of what is the best standard form of railway to adopt. I regard it as the extreme of infatuation to lay down any absolute rules to regulate the modes of construction of railways in a country so vast, so various in its natural features, and so poor as India. Still more mistaken is it to apply to India rules essentially based on the wants of England, which is probably the country in the world from which India most widely differs. England, of all others the richest, the most populous, the most celebrated for its manufactures, the most addicted to commerce, an island of small size, in a highly advanced state of civilization, where dispatch is of extreme importance, and time equivalent to money,—England of all countries, is the last which we should take as our model in these things. In one respect certainly, but only in one, can I admit that English standards are applicable—let all workmanship be thoroughly good of its kind, and every part of the construction permanent and suited to what is required of it.

43. Skill in engineering work implies the successful adaptation of the art of construction to varying circumstances. For a poor country, economy is one of the essential conditions to be complied with, and its requirements may be as rigid as any of those imposed by physical conditions. Wholly to reject railways for a country which is not able to support lines of the most costly description, is quite unreasonable; and if, on a further examination in detail of the probable cost and returns of any of the lines which otherwise seem desirable, the expense of lines of the ordinary gauge seems prohibitory, while lines of a narrow gauge would be financially practicable, I should consider it a most mistaken view to reject the narrow gauge line. And so with any other modification of ordinary practice. For complete success in the great operations which the Government of India has before it, broad views and a ready adoption of all truly sound measures, whether out of the usual course or not, are essential, and it will be a source of lasting regret if the progress of this country, which, of all others, most directly depends on the improvement of its means of internal communication, should be retarded by the weight of administrative prescription, or engineering prejudice.

Calcutta,
9 January 1869.

(signed) *John Lawrence.*

TABLE referred to in Paragraph 41 of the Governor General's Minute, showing proposed Order of Executing New Lines of Railways.

DISTRICTS AND LINES.	Length of Lines of Railway in Miles.								
	Lines existing or sanctioned.		New Lines arranged in proposed Order of Execution.						TOTAL.
	Now Open.	In Progress.	First 5 Years.	5 to 10 Years.	10 to 15 Years.	15 to 20 Years.	20 to 25 Years.	25 to 30 Years.	
SINDH:									
Kurrachee to Kotree	109	–	–	–	–	–	–	–	109
Kotree to Mooltan (Indus left bank)	–	–	100	150	150	50	–	–	450
„ to Sukkur (Indus right bank)	–	–	–	–	–	100	100	–	200
„ to Cutch	–	–	–	–	–	–	100	50	150
Cutch to junction with Goozerat line	–	–	–	–	–	–	–	125	125
	109	–	100	150	150	150	200	175	1,034
PUNJAB:									
Mooltan to Umritsur	246	–	–	–	–	–	–	–	246
Umritsur to Delhi	183	120	–	–	–	–	–	–	303
Lahore to Rawulpindee	–	173	–	–	–	–	–	–	173
Rawulpindee to Peshawur	–	–	–	50	50	–	–	–	100
Jhelum to Pind-dadun Khan	–	–	50	–	–	–	–	–	50
Three branches	–	–	–	–	–	50	50	–	100
	429	293	50	50	50	50	50	–	972
NORTH-WEST PROVINCES AND OUDH:									
East Indian Railway—Buxar to Delhi	562	–	–	–	–	–	–	–	562
Oudh and Rohilkhund Railway—Buxar to Saharunpoor.	–	450	–	100	–	–	–	–	550
Branches of East Indian Railway	–	–	–	–	45	50	–	–	95
„ of Oudh Railway	42	258	–	–	–	–	–	–	300
	604	708	–	100	45	50	–	–	1,507
RAJPOOTANA, CENTRAL INDIA, AND BUNDLEKHUND:									
Jubbulpoor Branch, East Indian Railway.	223	–	–	–	–	–	–	–	223
Nerbudda Section, Great Indian Peninsula Railway.	–	210	–	–	–	–	–	–	210
Delhi to Jeypoor and Ajmeer, and branches to Sambur and Bhowanee.	–	–	200	50	–	50	–	–	300
Ajmeer to Neemuch, Rutlam, and Indore.	–	–	–	70	215	–	–	–	285
Indore to Great Indian Peninsula Railway.	–	–	100	–	–	–	–	–	100
Neemuch to Baroda	–	–	–	100	100	–	–	–	200
Ulwar to Bhurtpoor, Agra, and Muttra	–	–	–	–	120	–	–	–	120
Agra to Gwalior and Jhansie	–	–	–	–	–	–	130	–	130
Jhansie to Banda and Jubbulpoor Line, East Indian Railway.	–	–	–	–	–	175	–	–	175
Jhansie to Saugor and Jubbulpoor Line, East Indian Railway.	–	–	–	–	–	–	–	185	185
Indore to Bhopal and Saugor	–	–	–	–	–	–	–	220	220
	223	210	300	220	435	225	130	405	2,148
BENGAL:									
North-West:									
East Indian Railway—Calcutta to Buxar, with Chord Lines.	569	148	–	–	–	–	–	–	717
Colgong to Moozufferpoor, Gorucknoor, and Baraitch.	–	–	–	50	100	150	125	–	425
Branches to Fyzabad and Hadjipoor.	–	–	–	45	–	–	40	–	85
Total, North-West	569	148	–	95	100	150	165	–	1,227

TABLE referred to in Paragraph 41 of the Governor General's Minute, &c.—*continued.*

DISTRICTS AND LINES.	Length of Lines of Railway in Miles.								
	Lines existing or sanctioned.		New Lines arranged in proposed Order of Execution.						TOTAL.
	Now Opened.	In Progress.	First 5 Years.	5 to 10 Years.	10 to 15 Years.	15 to 20 Years.	20 to 25 Years.	25 to 30 Years.	
Bengal—*continued.*									
Total, North-West	569	148	–	95	100	150	165	–	1,227
North East:									
Eastern Bengal Railway to Goalundo.	113	45	–	–	–	–	–	–	158
Kooshtee, *viâ* Dinajpoor to foot of hills (for Darjeeling).	–	–	210	–	–	–	–	–	210
Purneah Branch	–	–	–	–	–	–	50	–	50
Nulhattee, *viâ* Moorshedabad to Kishnagurgh and Eastern Bengal Railway.	40	–	–	60	–	–	–	–	100
Branches to Jessore and Burisaul	–	–	–	–	50	60	–	–	110
Goalundo to Dacca and Chittagong	–	–	–	50	50	50	50	–	200
Branch to Mymensing	–	–	–	–	–	60	–	–	60
Calcutta and South Eastern Railway.	28	–	–	–	–	–	–	–	28
	750	193	210	205	200	320	265	–	2,143
EAST COAST OF PENINSULA:									
Calcutta to Midnapoor, Cuttack, and Ganjam.	–	–	80	100	80	100	–	–	360
Junction to Burdwan	–	–	–	–	–	–	–	100	100
Ganjam to Bezwarrah, and Madras Railway.	–	–	50	50	50	150	280	–	580
Branches to Coconada and Masulipatam	–	–	65	–	–	–	–	–	65
	–	–	195	150	130	250	280	100	1,105
MADRAS:									
Madras Railway	677	157	–	–	–	–	–	–	834
Branches to ditto	–	–	15	–	–	–	–	–	15
Arcornum to Tanjore, Madura, and Tinevelly.	–	–	60	100	70	100	–	–	330
Branches to Pondicherry and Tuticorin	–	–	35	–	–	–	40	–	75
Negapatam to Errode	168	–	–	–	–	–	–	–	168
	845	157	110	100	70	100	40	–	1,422
WEST COAST OF PENINSULA:									
Beypoor to Trivandrum and Tinevelly	–	–	50	50	50	50	50	50	300
„ to Mangalore and Carwar	–	–	50	50	50	60	100	–	310
Carwar to Bombay, *viâ* Goa	–	–	–	–	–	–	100	220	320
	–	–	100	100	100	110	250	270	930
MYSORE:									
Bangalore, *viâ* Hassan (Tipatoor) to Toongabuddra River (Bellary and Dharwar Line), with Branches.	–	–	50	50	50	50	50	50	300
	–	–	50	50	50	50	50	50	300
HYDERABAD AND THE DECCAN:									
Koolburga to Hyderabad	–	–	116	–	–	–	–	–	116
Hyderabad to Bezwarrah	–	–	–	–	–	–	180	–	180
„ to Nagpoor	–	–	–	–	–	–	–	280	280
Bellary to Dharwar, Kolapoor, and Patus (Great Indian Peninsula Railway).	–	–	–	100	100	100	70	–	370
Darwar to Carwar	–	–	45	50	–	–	–	–	95
Munmar to Dhoond (junction of Great Indian Peninsula Railway Branches).	–	–	82	50	–	–	–	–	132
Great Indian Peninsula Railway	631	187	–	–	–	–	–	–	818
Branches to ditto	–	–	30	30	–	–	–	–	60
	631	187	273	230	100	100	250	280	2,051

TABLE referred to in Para. 41 of the Governor General's Minute, &c.—*continued.*

DISTRICTS AND LINES.	Length of Lines of Railway in Miles.								
	Lines existing or sanctioned.		New Lines arranged in proposed Order of Execution.						TOTAL.
	Now Open.	In Progress.	First 5 Years.	5 to 10 Years.	10 to 15 Years.	15 to 20 Years.	20 to 25 Years.	25 to 30 Years.	
CENTRAL PROVINCES:									
Great Indian Peninsula Railway, Nagpoor Branch.	244	–	–	–	–	–	–	–	244
Nagpoor to Raepoor	–	–	–	50	50	50	30	–	180
Raepoor to Cuttack	–	–	–	–	–	–	–	320	320
	244	–	–	50	50	50	30	320	744
BOMBAY, GUZERAT, AND KATTYWAR:									
Bombay and Baroda Railway	306	6	–	–	–	–	–	–	312
Ahmedabad to Veerungaum, Wudwan, and Junction with Cutch Line.	–	–	50	50	50	–	–	–	150
Branch to Deesa	–	–	–	–	–	75	–	–	75
Kattywar Lines	–	–	50	50	50	–	–	–	150
	306	6	100	100	100	75	–	–	637
BURMAH:									
Rangoon to Prome	–	–	50	50	66	–	–	–	166
	–	–	50	50	66	–	–	–	166
TOTAL	4,141	1,754	1,538	1,555	1,546	1,530	1,545	1,600	15,209 miles total.
	5,895 miles old lines.		9,314 miles new lines.						

(Railway, No. 42.)

To His Excellency The Right Honourable the Governor General of India in Council.

My Lord, India Office, London, 15 July 1869.

Para. 1. I HAVE had under consideration in Council your Despatches, of the numbers and dates noted in the margin,* replying to three from Sir Stafford Northcote on the general subject of railway extension in India, and exhibiting the views of your Excellency in Council as to the railway policy fitting to be pursued in that country in future.

* No. 24, dated 11 March 1869.
No. 25, dated 11 March 1869.
No. 28, dated 22 March 1869.

2. The subject is arranged by you under three heads, each of which you have found it convenient to treat separately; the most suitable agency for the construction of railways being discussed in the first of your Despatches, the relative claims of particular lines to early construction in the second, and certain special questions connected either with construction or subsequent administration in the third.

3. Under the first and third heads some weighty matters are considered, into which it is unnecessary that I should enter at all minutely, inasmuch as I concur generally in your reasoning regarding them, and in the more important of the conclusions at which you have arrived. Whatever may have been the strength of the considerations which, 20 years ago, induced the Government to entrust to guaranteed companies the construction of railways in India, I concur with your Excellency and with the late Viceroy in the opinion that the time has now arrived when, both in raising and in expending such additional capital as may be required for new lines in India, the Government should secure for itself the full benefit

benefit of the credit which it lends, and of the cheaper agencies which ought to be at its command. Her Majesty's Government has already sanctioned the construction of a line from Lahore to Rawul Pindee on this system, and the preliminary survey for a railway from Carwar to Hooblee. The greater number of the lines indicated by your Lordship as of prominent importance (and especially those running mainly through independent Native States), are lines to which the new system ought to be applied. The formation of branches and of subsidiary extensions of existing lines, where such extensions are of comparatively small extent, may perhaps be more conveniently left in the hands of the guaranteed companies.

4. It is of course obvious, as pointed out in the 40th paragraph of Lord Lawrence's Minute, that the financial success of a railway depends as much on the limitation of its cost as on the magnitude of its traffic, and that, whether Government agency be employed or not, too much attention cannot be paid to economy in construction, to the selection of lines not involving heavy works, and to the careful avoidance of all expenditure not absolutely required for the stability of the works or the accommodation of the traffic. I trust that the direct control of the Government that will be exercised on the State railways will insure full attention being given to these considerations.

5. In your Excellency's Despatch, No. 24, of 11th March, while dwelling on the defective control of the Government under existing contracts with the guaranteed railway companies, you remark, with reference to any new arrangement which may be made with such companies (in the 17th and 18th paragraphs), that the simple power of taking over the works from the companies, in the event of their not being carried on to the satisfaction of Government, would suffice, and be preferable to any special coercive stipulation; and, secondly, you urge that a different system should be adopted in dividing the net profits above the guaranteed rate of interest; viz., that these should for all time be divided equally between the Government and the company, and that the mention of the repayment of guaranteed interest be dropped as unnecessary. You consider it important that no work, even in extension of their present undertakings, should be entrusted to companies except on these two conditions.

6. Both of these stipulations are unquestionably right in principle. The first of them ought to be made applicable to all cases, and the second of them to all cases in which the new amount of capital to be expended is sufficient to make it worth while to establish a separate system of account.

7. To certain portions of the second of your Despatches an immediate reply is, however, requisite. In that Despatch the following list is given of railway projects which have been suggested for early adoption, and which you consider will, in conjunction with those either already executed or in process of execution, form a network of lines of an aggregate length of 15,000 miles, threading every part of India to which railway communication for the present can be judiciously extended:—

1. Indus Valley.
2. Rajpootana.
3. Kumaon Iron Works.
4. Kooshtee to Darjeeling.
5. East Coast, Northern Section.
6. East Coast, Southern Section.
7. Branches of Madras Railway.
8. Extension of Great Southern of India line to Tuticorin.
9. West Coast, Southern Section.
10. West Coast, Northern Section, comprehending line from Carwar to Hooblee.
11. Mysore.
12. Kulburga to Hyderabad.
13. Junction of North-East and South-East Branches of the Great Indian Peninsula Railway.
14. Branches to Great Indian Peninsula Railway.
15. Branches to Bombay and Baroda Railway.
16. Ahmedabad to Veerungaum and Wudwan.
17. Kattywar.
18. Rangoon to Prome.

8. Of these, *Nos. 3, 4, 7, 8, 14, 15, and 16 are considered to be so connected with undertakings of existing Companies as to give to the latter a natural hope and expectation that they will be entrusted with their construction, provided they are willing to accept it on certain specified conditions, differing somewhat materially from those of the existing contracts. For the remaining projects

* Kumaon; Darjeeling; Branches to Madras Railway; Tuticorin; Branches to Great Indian Peninsula Railway; Branches to Bombay, Baroda, and Central India Railway; Veerungaum and Wudwan.

Government agency would, you consider, be decidedly preferable; and with respect to four of these,* viz., Nos. 1, 2, 12, and part of 10, you recommend that preparations be at once made for the commencement of constructive operations.

*Indus Valley. Rajpootana. Koolburga and Hyderabad. Carwar and Hooblee.

9. Thus, with regard to the upper portion of the Indus Valley line, or the part between Mooltan and Sukkur, you desire to have forthwith completed all necessary surveys for obtaining a definite and final project and estimate, on receipt and approval of which executive work might be immediately commenced; while, with regard to the lower portion from Sukkur to Kotree, you are anxious that inquiries should be pushed on for determining whether or not it is advisable to combine the excavation of an irrigation canal with the formation of the railway works.

Rajpootana.

10. In reference to Rajpootana, you are already satisfied as to the course which the line from Ajmere to Delhi should take, and, in anticipation of sanction, are about to have that line at once surveyed, marked out, and commenced, further inquiries being made simultaneously with the view of determining the exact direction of the branch to Agra. You also propose to take early steps for deciding the best direction for a line running southward from Ajmere to Bombay.

11. The line from Kulburga to Hyderabad you also describe as one that should be taken up at once; while for a line from the port of Carwar to Hooblee, surveys are, I presume, actually in progress, under the recent instructions sent by me to the Government of Bombay.

Indus Valley.

Moultan to Sukkur.

12. The measures which you propose to take regarding the Indus Valley line are approved. It will suffice for the present, to undertake by Government agency the upper section of this line from Mooltan to Sukkur, leaving for future inquiry and consideration the extension of the line to Hyderabad or Kotree. By limiting the work to be performed by the Indus Flotilla to the navigation of the river between Sukkur and Kotree, the communication from Kurrachee to the north-west frontier will be greatly facilitated, pending the completion of the railway throughout the entire length.

Delhi to Sambur Lake. Kulburga to Hyderabad.

13. Your proposal to take immediate measures for carrying on lines from Delhi and Agra to Jeypore and the Sambur Lake, and from Kulburga to Hyderabad are also approved.

14. No time should be lost in completing the surveys and investigations necessary for the preparation of complete and reliable estimates, which must be submitted to me in a condensed form before actual construction is commenced.

15. In the ultimate prosecution of these works, I consider it to be a matter of the first importance that the principle laid down in the 41st paragraph of your Despatch, No. 25, should be carefully observed, viz., "that the actual expendi- "ture on the several railways should be strictly limited year by year on a "regularly-arranged budget estimate, to a certain fixed aggregate amount."

16. The selection of the lines to be taken up in the first instance must be regulated by this consideration, as well as by the relative importance of the lines, and by the supply of labour to be obtained, without detriment to agriculture or to the progress of other public works.

17. I recognise the truth of your remark that it would be "a mistake to "attempt to force on the construction of works of this class in a manner which "will seriously increase their first cost;" but I am satisfied that it would be more advisable to confine your operations in the first instance to a few lines, and to carry them out to completion as fast as may be consistent with economy of construction, rather than to commence work on a large number, and so to limit unduly the funds available for each, and to prolong the time during which the capital would remain unproductive.

Indore.

18. In speaking of the Rajpootana project, you observe that, whether the connection between Ajmere and Baroda be effected *viâ* Deesa and Ahmedabad or *viâ* Neemuch, a line from Indore to Neemuch and Ajmere may be indispensable. I am disposed to concur in this opinion, which leads me to the further conclusion, that, if this link in the communication between Bombay and Delhi be supplied, the

the extension of the Bombay, Baroda, and Central India Railway into Rajpootana, either by Deesa or by Rutlam, may well be deferred until several more important lines shall have been completed.

Carwar and Hoobleе.

19. Railway communication between Carwar and the interior is, I observe, treated by you in connection with what is termed the northern section of the West Coast Railway, and as if there were to be lateral branches from Carwar north and south along the coast. The utility of such branches is not at all clear to me. I should rather have supposed that, if Carwar was connected by rail with the great cotton field beyond the Ghauts, the traffic of that district would naturally concentrate itself in Carwar, instead of being distributed, as at present, among a number of small rival marts and ports.

20. Of the projects on your list recommended for construction by Government, the four specified above are the only ones on which immediate instructions are needed. Of those, however, which may be regarded as extensions of the works of existing companies, there are some on which it is unadvisable that decision should be needlessly delayed. Offers shall immediately be made, on the conditions recommended by you, to the Bombay, Baroda, and Central India Railway Company of the proposed extension from Ahmedabad to Veerungaum and Wudwan. And similar offers will likewise be made to the Indian Tramway Company and to the Great Southern of India Railway Company, respecting lines from Arconum to Cuddalore and from Trichinopoly to Tuticorin. With reference to your suggestion that lines running parallel to the coast might be preferable to those hitherto proposed, I will only say that it appears to me to be at least doubtful whether railways along either the eastern or western coasts can be among the number of those lines which press for very early consideration. Railways running parallel with the coast must necessarily come more or less into competition with the route by sea, and it would therefore seem expedient that such lines should be deferred until the inland communications have been further developed.

Ahmedabad to Veerungaum and Wudwan.

Arconum to Cuddalore.

Trichinopoly to Tuticorin.

Kooshtee to Darjeeling.

21. Your Excellency considers that a railway in extension of the Eastern Bengal line from Kooshtee to Titalyah at the foot of the Darjeeling Hills, is one which commends itself for early construction on many grounds of policy. Though believing that this line will ultimately be required, I am not satisfied of the priority of its claims to the attention of Government, especially as regards the upper half of the line; but I am prepared to sanction the preliminary survey and estimate of a line from Kooshtee to Bugwah on the Megna, which in itself would be of great commercial value, and would be a starting point for future extensions to Darjeeling on the one hand, and into the valley of Assam on the other.

22. On the subject of a railway to the Kumaon Iron Works, I addressed you some time ago in a separate Despatch.

23. Regarded as a whole, I may observe generally that the arrangements proposed by you in the Despatches under acknowledgment, appear to me well adapted for providing in India, gradually, regularly, and with all advisable rapidity, a fairly complete national system of railway communication. The success of the arrangements must, however, in great measure depend on the character of the machinery created for the purpose of giving them effect, and I shall be glad to be informed somewhat in detail how you propose to proceed in that essential particular.

I have, &c.
(signed) *Argyll.*

EAST INDIA (RAILWAYS).

COPIES of DESPATCH from the Government of *India*, and MINUTE by the late Governor General, and DESPATCH to the Government of *India*, No. 42, of 15 July 1869, on the subject of RAILWAY EXTENSION in *India*.

(Presented to Parliament by Her Majesty's Command.)

Ordered, by The House of Commons, *to be Printed,*
23 *July* 1869.

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Under 4 *oz.*

REPORT

TO

THE SECRETARY OF STATE FOR INDIA IN COUNCIL

ON

RAILWAYS IN INDIA,

FOR THE YEAR

1868-69.

BY JULAND DANVERS, ESQ.,

GOVERNMENT DIRECTOR OF THE INDIAN RAILWAY COMPANIES.

Presented to both Houses of Parliament by Command of Her Majesty.

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1869.

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MAP OF

INDIA

SHEWING THE LINES OF RAILWAY

IN THE YEAR 1903

REPORT.

To His Grace the Duke of Argyll, K.T., Secretary of State for India.

My Lord Duke, 28th June 1869.

I have the honour to lay before your Grace my tenth annual report on the subject of Railways in India.

General progress.

2. As the system of trunk lines which has been sanctioned approaches completion, the yearly additional mileage becomes smaller. I have accordingly this year to report but a comparatively small increase of the length of open line. Of the 5,925 miles which comprise the present system, 4,096 have been completed, and of these 174 were opened during the past year. Twenty-one miles were added to the North-eastern line of the Great Indian Peninsula Railway in February. On the North-west line of the Madras Railway 32 miles were opened for traffic on the 1st September; 120 miles of the Delhi line, which is thus extended to Umballah, were opened by the late Viceroy, Lord Lawrence, in November; and 1½ miles were added to the Bombay end of the Bombay and Baroda Railway in September.

3. The following table furnishes particulars of the position of each undertaking with respect to its length of open and unopen line.

Railway.	Total Length as at present sanctioned (given approximately).	Length opened during 1868.	Total Length now opened.	Length remaining to be finished, and probable Time of Completion.			
				1869.	1870.	1871 and subsequently.	Total.
East Indian - { Main line - -	1,276¼	—	1,131¼	—	145	—	145
East Indian - { Jubbulpore line -	225	—	225	—	—	—	—
Great Indian Peninsula - - -	1,266¾	21¼	873¾	—	193	200	393
Madras - { S.-W. line - - -	528	—	492	—	—	36	36
Madras - { N.-W. line - - -	341	32	185	30	—	126	156
Bombay, Baroda, and Central India -	312½	1½	307½	—	5	—	5
Scinde - - - - -	109	—	109	—	—	—	—
Punjab - - - - - -	246	—	246	—	—	—	—
Delhi - - - - -	320	120	174	70	76	—	146
Eastern Bengal - - - -	159	—	114	—	45	—	45
Great Southern - - - -	168	—	168	—	—	—	—
Oude and Rohilcund - - -	672	—	42	—	36	594	630
Calcutta and Mutlah - - -	29	—	29	—	—	—	—
Lahore and Peshawur - - -	273	—	—	—	—	273	273
Total - - - - - -	5,925½	174¾	4,096½	100	500	1,229	1,829

4. No very important addition is likely to be made to the extent of open railway during the ensuing year. A further section of the Delhi line will probably be finished, as well as another portion of the north-west branch of the Madras Railway. But the completion of the chord line of the East Indian Railway and the last section of the Delhi line, which will have the effect of bringing Calcutta into direct and uninterrupted communication with Lahore by a railway 1,500 miles in length, must not be expected until the autumn of 1870. About the same time the railway between Bombay and Calcutta will probably be completed. The delay in opening this important line has been caused by the backward state of the works on the Great Indian Peninsula Railway. Fresh cases of faulty construction in some of the bridges on this line, which help to retard its completion, have, I regret to say, been reported. Great hopes, however, are entertained that during the course of next year all the necessary repairs will have been effected and the line opened to Jubbulpore, where it joins the East Indian Railway.

5. Most of the bridges which have failed, and which were originally made with arches of brick or stone, are now being reconstructed with iron girders. The substitution of iron for masonry has also been much resorted to on other lines where bridges have been injured. It is somewhat remarkable that while the inundations and floods peculiar to the country were particularly alluded to, when railways were first commenced, as amongst the difficulties that would have to be overcome, the want of sufficient waterway has been a fruitful source of danger and expense. The experience which we have gained ought not to be lost in designing future lines. This, however, was not the cause of the disastrous failures in the Great Indian Peninsula Railway. They were produced by a combination of errors. The first and foremost was the imperfect manner in which the designs and specifications were prepared; and this was followed by the use of inferior materials, and by a lax system of supervision while construction was going on.

New lines.

6. Although the subject of railway extension has, during the past year, much engaged the attention both of the Home Government and of the Government of India, the only new line which has actually been decided on is the branch of 36 miles from the present Madras Railway to the Neilgherry Hills. This however can hardly be called a new line, as it was included in the original contract with the Madras Railway Company, its execution being postponed until the accommodation which it is intended to provide was more urgently required than appeared to be the case at that time. The company have now undertaken to execute it, at the request of Government. The easy access which it will give to the bracing climate and beautiful scenery of the Neilgherry Hills will be a great boon to Europeans and their families.

Future extensions.

7. It will be recollected that the line joining Lahore with the north-west extremity of the empire at Peshawur had already been determined on. Measures are now being taken for staking it out and commencing constructive operations. With regard to schemes for future railway extension, the despatch of the Secretary of State, appended to my last annual report, in which the Government of India was invited to report to Her Majesty's Government the lines which are most called for, and the order in which they should be constructed, was followed by other despatches on the same subject. These have recently elicited from the Government a comprehensive scheme for the extension of railway communication throughout India, as well as an exposition of their views upon the agency by which it should be carried out. With regard to the latter question, the present Government agrees with the late Viceroy, Lord Lawrence, who, before his departure, recorded a minute on the subject, that the future lines should "so far as "is consistent with actual and implied engagement with existing companies be "carried out by the Government itself." The Government is "very far from "questioning the great value of the work actually performed by companies in the "prosecution of railways in a period of undoubted difficulty. But," they add, "the "whole conditions of the problem have since changed, and in this as in numerous "other matters of great public importance, modified methods of action are neces-"sary to meet the altered circumstances of the time."

8. This recommendation is based upon the belief that expenditure will be kept more under control than when incurred through the agency of companies; that the cost of future lines will, in consequence, be much diminished; and that, if at one time India was wanting in experience, she now possesses all the knowledge requisite in dealing with the administration and construction of railways. The Government also thinks that a railway through a native state, where delicate negociations may be necessary, is much better in the hands of Government than of a company. It is not proposed to abandon altogether the agency of companies for future lines; but the notion of allotting commercial and remunerative lines to companies, and of throwing upon Government the political and non-paying lines, did not meet with a favourable reception from the Government of India. Your Grace is aware that before these despatches were received the question of agency had engaged your attention, and that you had come to very much the same conclusions regarding it.

9. As respects the lines which are to be undertaken, Lord Lawrence's intention was to propose, and Lord Mayo entirely supports the proposal,—"that the construc-"tion of such a system of railways should be commenced as appeared likely to give "a tolerably complete network of main lines, traversing all parts of India, in which "considerations of policy, or the probable requirements of the trade and internal "convenience of the country, indicated the utility of opening such lines, and give "sufficient grounds to anticipate the eventual growth of a traffic which would pay

" the interest on the cost of construction." The rate of progress will depend upon the amount of capital upon which the Government can afford to pay interest out of the revenues. It is computed that 10,000 miles, in addition to the 5,000 which are either open or in course of construction, would provide necessary communication through all the chief provinces: that by an annual expenditure of 3,750,000*l.*, 300 miles could be opened every year, supposing the cost to be 12,000*l.* per mile; and that thus in about 30 years all the requirements of India would be met, " without " either extraordinary taxation, inconvenient pressure on the public revenues, or " objectionable increase of the liabilities of the state."

10. The new lines proposed are:—

1. The Indus Valley, to connect the present Scinde Railway at Kotree with the Punjab railway at Moultan.
2. Rajpootana lines, to connect Agra and Delhi with Bombay, by way of Ajmeer and Neemuch, also by way of Indore.
3. Branches from the Bombay and Baroda Railway to Veerungaum and Wudwan and into the province of Kattywar.
4. A West Coast Railway, to commence at the port of Carwar and to proceed to Hooblee and then on to the present Madras Railway at Bellary, and north to the Great Indian Peninsula Railway at or near Deeksul.
5. A junction line to connect the North-east and South-east lines of the Great Indian Peninsula Railway.
6. A line from Kulburga, on the Great Indian Peninsula Railway, to Hyderabad.
7. Branches to the Madras Railway.
8. Extension of the Great Southern of India Railway to Tuticorin.
9. East Coast lines, between Calcutta and Madras, viâ Midnapore, Cuttack, and the port of Coconada, and south of Madras towards Pondicherry.
10. A system of lines for Mysore.
11. A line from the Eastern Bengal Railway at Kooshtea to Darjeeling.
12. A line from Rangoon to Prome.

11. It will be observed that, notwithstanding the extensive character of the scheme, no rival or competitive projects are proposed, and that those lines which are now open and those which are about to be undertaken have large fields of their own to traverse without fear of trenching on each other's territory.

12. In a recent despatch your Grace has expressed general concurrence in the views entertained by the Government of India, and while raising doubts as to the necessity for some of the proposed lines and suggesting the postponement of others, you have authorised the immediate commencement of operations on the Indus Valley line, on the Rajpootana line, on the line from Kulburga to Hyderabad, and on that from Carwar to Hooblee, committing the execution of the same to the Government. Your Grace has also entered into negotiations with the Bombay and Baroda Railway Company for the construction of a branch from their line at Ahmedabad to Veerungaum and Wudwan, with the Great Southern for the continuation of their railway to Tuticorin, and with the Indian Tramway Company for the extension of their line to Cuddalore.

Government agency.

13. It is hardly necessary to remark that with the employment of direct government agency in the construction of railways in India we commence a new epoch in their history. Valuable experience has been gained, through the operations of the last 20 years, by officers of the Indian service, and Government is of course just as well able as companies to command the skill, and better able to command the money, requisite to carry on these important public works. But great care and circumspection will be required in organising an efficient system of administration. I will not here enter into a consideration of what that plan should be. I will only venture to refer to one or two conditions which appear to be essential to the success of the new policy. The funds for a railway, having been sanctioned and provided, should, I submit, be administered by a department, which, while accountable to the Supreme Government for its proceedings, should be distinct from that charged with the other financial concerns of the country; the accounts of each undertaking should be kept separate; and the execution of the works as well as the management of the affairs of each should be conducted, as far as possible, on the principle of individual responsibility.

SUPPLIES FROM THIS COUNTRY.

14. The shipping operations during the past year have been less than the previous year by upwards of 115,000 tons, and the value of the goods supplied from this country have been 1,849,554*l.*, as compared with 3,052,652*l.* during 1867.

15. The following table furnishes the particulars of each railway :—

SHIPPING OPERATIONS DURING THE YEAR 1868.

Railway.	Number of Ships employed.	Amount of Goods shipped.	Value of Goods shipped.	Amount paid for Freight and Insurance.
		Tons.	£	£
East Indian	68	40,888	464,481	68,342
Great Indian Peninsula	100	85,615	847,700	194,018
Madras	45	20,738	156,169	45,118
Bombay, Baroda, and Central India	26	9,382	94,162	20,360
Scinde	57	6,444	19,070	16,104
Punjab		176	2,898	1,092
Indus Flotilla		84	1,630	272
Delhi		8,108	133,600	21,768
Eastern Bengal	56	12,976	95,484	18,912
Great Southern of India	4	4,247	33,100	8,940
Oude and Rohilcund	8	200	1,260	127
Total	364	188,858	1,849,554	395,053

16. Three ships were wrecked during the year, one with goods of the value of 8,600*l.* belonging to the Great Indian Peninsula Railway ; one with a cargo of coal belonging to the Scinde Railway Company valued at 2,420*l.*, and one in which the Eastern Bengal Company had shipped 400*l.* worth of goods. All were fully insured.

Shipments since commencement of railway works in India.

17. The shipments which have been made from this country to India for the purposes of the railways since their commencement will be seen in the subjoined account :—

Year.	No. of Ships.	Ships lost.	Amount of Goods shipped.	Value of Goods shipped.
			Tons.	£
Up to end of 1860	2,605	39	2,094,686	10,431,976
In 1861	407	—	182,621	1,669,443
„ 1862	280	1	138,013	1,487,582
„ 1863	279	2	166,840	1,285,464
„ 1864	233	—	102,318	1,018,164
„ 1865	442	2	199,157	1,729,543
„ 1866	581	7	312,227	2,527,757
„ 1867	512	5	333,329	3,052,652
„ 1868	364	3	188,858	1,849,554
Total	5,703	59	3,718,049	25,052,135

Locomotive and rolling stock.

18. The following table shews the number of locomotive engines, passenger carriages, and goods waggons added to the former stock of each company during the past year, and the number in use on the 1st January 1869. The whole number of locomotives added was 49, and the rolling stock has been increased by 142 passenger carriages and 1,743 trucks and waggons.

19. The average number of engines to the mile will thus appear to be 4·46. On the several lines the proportion is as follows :—

Railway.	Number of miles to each Locomotive.	Number of Vehicles to each Locomotive.
East Indian	3·18	16·81
Great Indian Peninsula	3·70	28·27
Madras	6·38	30·72
Bombay and Baroda	4·87	48·49
Scinde	4·36	29·40
Punjab	6·65	20·
Eastern Bengal	3·69	15·41
Great Southern of India	11·20	—
Oude and Rohilkund	10·50	27·25

LOCOMOTIVE and ROLLING STOCK on the 31st December 1868.

Railway.	Miles open on 1st May 1869.	Locomotives.			Passenger Carriages.		Trucks and Waggons.		Total Number of Vehicles on 31st December 1868.
		Former Number.	Added in 1868.	Total Number, 31st Dec. 1868.	Former Number.	Added in 1868.	Former Number.	Added in 1868.	
East Indian - -	1,356	425	11	436	850	50	6,202	228	7,330
Great Indian Peninsula	874	209	27	236	958	33	4,583	1,119	6,693
Madras - -	677	106	—	106	262	15	2,680	300	3,257
Bombay, Baroda, and Central India -	307	63	—	63	181	—	2,874	—	3,055
Scinde - -	109	25	—	25	64	—	671	—	735
Punjab - -	246	38	—	38	116	—	669	—	785
Delhi - - -	174	6	—	6	107	—	254	—	361
Eastern Bengal -	114	32	11	43	92	8	509	54	663
Great Southern of India	168	15	—	15	33	8	205	10	256
Calcutta and South-eastern - -	29	12	—	12	56	—	478	—	534
Oude and Rohilkund -	42	4	—	4	12	28	37	32	109
Total - -	4,096	935	49	984	2,781	142	19,092	1,743	23,778

20. The following table relates to the number of stock and debenture holders in the various companies :— Proprietors of stock and debentures.

Railway.	Number of Shareholders on 31st December 1868.						Number of Debenture Holders.	Total Number of Proprietors on the 31st December 1868.
	Registered in England.			In India.				
	With Stock or Shares to the Amount of 1,000*l.* and upwards.	With Stock or Shares of less Amount than 1,000*l.*	Total in England.	Europeans.	Natives.	Total in India.		
East Indian - - -	5,415	7,555	12,970	200	138	338	3,640	16,948
Great Indian Peninsula -	4,148	5,835	9,983	66	105	171	1,823*	11,977
Madras - - -	2,442	3,620	6,062	—	—	—	952	7,014
Bombay, Baroda, and Central India - -	2,070	3,171	5,241	14	69	83	1,030	6,354
Scinde - - -	777	845	1,622	16	3	19	156	1,797
Punjab - - -	697	1,005	1,602	17	2	19	63	1,766
Delhi - - -	1,337	1,977	3,314	40	6	46	—	3,360
Indus Flotilla - -	206	84	290	—	—	—	120	410
Eastern Bengal - -	595	862	1,457	19	21	40	463	1,960
Great Southern of India	341	493	834	2	7	9	123	966
Oude and Rohilkund -	441	381	822	13	20	33	74	929
Total - -	18,469	25,828	44,297	387	371	758	8,444	53,499

* Including 80 holders of debenture stock.

Stockholders.

21. The total number of individuals personally interested in the Indian railways thus amounts to 53,499, being an increase of 3,809 over the previous year. Only 371, or less than 1 per cent. of the whole, are natives of the country so largely benefited. It may be almost said, therefore, that the funds for these great works are supplied exclusively from England. There are, however, amongst the shareholders many persons whose fortunes and incomes are derived from India, either as public servants, retired officers, or through commerce.

PERSONS EMPLOYED ON THE LINES.

Officers and servants.

22. The following returns relating to the officers and servants employed on the railways is incomplete, in consequence of the non-receipt of the necessary information from Bombay regarding the lines in that presidency.

23. Compared with last year the number of Europeans employed is about the same. The natives are 1,200 in excess. The casualties from death amongst the Europeans and East Indians were at the rate of 1·31 per cent.

24. The shifting character of the European staff is exhibited by the fact that in 1868, out of 1,732 men, 613 left the service of the East Indian Railway from various causes, including dismissals, resignations, deaths, &c.

25. In connexion with this subject I may mention that the nucleus of a very important military force has been formed lately by the creation of a corps of volunteers composed of the East Indian Railway officers and men. Encouragement in the shape of a capitation allowance, and of the grant of arms will be given by Government. It is calculated that upwards of 2,000 will join this force from the East Indian Railway alone. If the employés on the other lines follow the example we shall have an organised force of from 7,000 to 8,000 men upon whom the Government could depend for aid in case of emergency. The railways would then more than ever deserve the name of important strategical works.

PERSONS EMPLOYED ON LINES

on the 1st October 1868.

Railway.	Agent's Department, including Medical and Barrack Departments.			Account Department.			Audit Department.			Printing and Stationery Department.			Stores Department.			Traffic Department, including Steam Ferry.			Engineer's Department.			Carriage and Waggon Departments.			Locomotive Department.			Telegraph Department.			Grand Total.			No. of Miles open.	No. of Stations.
	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.	Europeans and East Indians.	Natives.	Total.		
East Indian -	35	158	193	19	376	395	32	388	420	9	317	326	75	1,255	1,330	471	4,181	4,652	121	6,629	6,750	134	4,027	4,161	771	2,203	2,974	65	856	921	1,732	20,390	22,122	1,356	130
Madras - -	15	29	44	4	86	90	10	90	100	—	—	—	13	102	115	122	1,290	1,412	66	3,898	3,964	—	—	—	344	1,767	2,111	41	143	184	615	7,405	8,020	677½	69
Punjab - - Delhi - -	17	13	30	19	30	49	15	8	23	1	14	15	10	38	48	64	652	716	50	130	180	8	15	23	73	53	126	36	70	106	293	1,023	1,316	299	27
Eastern Bengal	8	52	60	3	64	67	1	19	20	—	6	6	5	49	54	64	1,036	1,100	48	2,260	2,308	5	144	149	47	281	328	3	88	91	184	3,999	4,183	114½	24
Great Southern of India.	18	73	91	—	—	—	—	—	—	—	—	—	—	—	—	13	223	236	5	272	277	—	—	—	45	138	183	—	—	—	81	706	787	168	22
Calcutta and South-Eastern.	4	—	4	1	5	6	—	1	1	—	—	—	1	12	13	4	71	75	5	163	168	—	6	6	5	26	31	—	11	11	20	295	315	29	8
Oude and Rohilkund.	14	52	66	2	13	15	3	38	41	4	17	21	1	15	16	10	158	168	3	69	72	—	—	—	10	52	62	2	18	20	49	432	481	42	5
Total -	111	377	488	48	574	622	61	541	605	14	354	368	105	1,471	1,576	748	7,611	8,359	298	13,421	13,719	147	4,192	4,339	1,295	4,520	5,815	147	1,186	1,333	2,974	34,250	37,224	2,685½	285

CASUALTIES UP TO THE 30TH JUNE 1868.

Railway.	General.		Traffic Department.		Locomotive and Carriage Department.		Engineer's Department.		Electric Telegraph Department.		Store Department.		Total Casualties of all kinds.		Total Casualties by Deaths.		Length in Miles.	
	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Europeans.	East Indians.	Open.	Under construction.
East Indian	—	1	86	30	224	102	58	9	4	8	1	6	373	156	16	—	1,356	145
Great Indian Peninsula	2	—	39	14	75	4	18	3	1	—	5	1	140	22	17	1	869	404
Madras	—	2	2	6	18	9	5	3	—	—	—	1	25	21	6	1	645	177
Bombay, Baroda, and Central India	—	—	7	15	15	38	3	1	—	—	—	2	25	56	6	1	308	—
Scinde	—	—	—	—	9	1	2	—	—	—	—	10	11	11	2	1	109	—
Indus Steam Flotilla	7	—	—	—	—	—	9	—	—	—	—	—	16	—	2	—	—	—
Punjab and Delhi	4	—	11	3	14	—	3	—	—	—	3	—	35	3	4	—	299	250
Eastern Bengal	2	1	6	1	15	5	9	—	—	1	—	—	32	8	4	1	112	45
Great Southern of India	—	3	—	1	2	3	1	3	—	—	—	—	3	10	1	4	168	—
Calcutta and South-Eastern	—	—	—	1	2	—	—	—	—	—	—	—	2	1	—	—	29	—
Oude and Rohilkund	2	3	1	—	2	—	3	1	1	3	—	—	9	7	1	—	42	630
Total	17	10	152	71	376	162	111	20	6	12	9	20	671	295	59	9	3,949	1,648

ACCIDENTS.

Accidents.

26. It will be seen by the following statements, which have been prepared in India, that during the year 1868 the mean length of line open was 3,958 miles, that the total number of train miles run was 11,431,656, and that the total number of accidents to trains was 259, or one per 44,137 train miles. The number of persons killed was 192, of whom 25 were passengers, making a mortality of about 1·50 per million; but nine out of the 25, or more than one third of them, lost their lives from their own indiscretion or want of caution, so that the average risk is better expressed by one per million. Fourteen of the remaining 16 were killed on one line at the same time. A train on the Eastern Bengal Railway ran into another train which was waiting in a station siding. The other persons killed consisted of 110 servants of the companies and 57 trespassers. Of the 274 who were injured but not killed, 64 were passengers, 189 servants, and 21 trespassers.

27. Since the close of the year under review an accident of an alarming character has occurred on the Great Indian Peninsula Railway. It happened to a train on the Bhore Ghât incline on the 26th January. While proceeding down the incline, all control over the train being lost, it flew into the reversing station at the bottom of the hill, ran over the embankment, and killed 18 native passengers. According to the first accounts received, the cause of the accident was attributed to the extraordinary slipperiness of the rails in consequence of a heavy dew; but considering that the line has been subject to similar influences for the last 10 years, it appeared impossible that this could be the sole and real cause of the catastrophe. If it had been, it would have shaken confidence in the means employed for working the traffic up and down the ghâts. A special investigation into the matter was however made by a commission appointed by the Government, and the conclusion to which they have come is, that the break power had not been judiciously applied on the occasion, and "that the proximate cause of the accident was want of proper caution "on the part of those in charge of the train." They also express their conviction that, with proper management, the command of the trains on the ghâts can never be lost, and they do not see the necessity for introducing a third central rail on the principle adopted on the Mont Cenis incline. The Company and the Government will of course see that measures are taken to secure that "proper management."

28. In connexion with the subject of accidents it is worth while to notice a new, or rather hitherto undiscovered, source of danger from fire, which was detected on the Cawnpore and Lucknow Railway. Live wood-ash, escaping from the fire of the engine, was blown up, by the draught of the passing train, against the dry wood of the trucks and set fire to them.

Table No. I.

Abstract of the Number and Nature of the Accidents and of the Injuries to Life and Limb which have occurred on all Railways open for Traffic in India during the Year 1866.

Presidency.	Mean Mileage open.	Railways.		Classification of Accidents to Trains, &c. — Main Heads. I. Collisions.	II. Getting off proper Line.	III. Fire.	IV. Running over Cattle.	V. Other Causes.	Total.	Passengers. From Causes beyond their own Control. Killed.	Injured.	From their own Misconduct or want of caution. Killed.	Injured.	Servants of Companies or of Contractors. From Causes beyond their own Control. Killed.	Injured.	From their own Misconduct or want of caution. Killed.	Injured.	Other Persons. While crossing at Level Crossings. Killed.	Injured.	While trespassing (including Suicides). Killed.	Injured.	Miscellaneous. Killed.	Injured.	Total Persons of all Classes. Killed.	Injured.	Killed and Injured.
Bengal	1,345	East Indian	1868	37	14	1	2	3	57	—	32	5	13	4	32	54	83	1	3	24	4	6	4	94	171	265
	1,224		1867	31	15	—	3	13	62	—	6	2	11	2	8	34	59	—	—	24	7	5	5	67	96	163
Ditto	113	Eastern Bengal	1868	1	—	—	—	—	1	14	6	—	—	1	—	3	1	—	—	1	—	—	—	19	7	26
	113		1867	—	—	—	—	—	—	—	—	—	—	—	—	3	3	—	—	2	—	—	—	5	3	8
Ditto	29	Calcutta and South-eastern.	1868	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	28		1867	—	1	—	—	—	1	—	—	—	—	—	—	1	—	—	—	1	—	—	—	2	—	2
Ditto	42	Oude and Rohilkund	1868	—	7	13	—	—	20	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1
	28		1867	—	2	—	—	1	3	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	3	3
Ditto	27	Nulhattee and Azimgunge.	1868	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	27		1867	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ditto	246	Punjab	1868	1	—	—	—	—	1	—	—	—	—	—	—	2	1	—	—	—	—	—	—	2	1	3
	246		1867	—	2	3	—	1	6	—	—	—	—	1	—	2	1	—	—	—	—	—	—	3	1	4
Ditto	53	Delhi	1868	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	24		1867	—	1	—	—	1	2	—	—	—	—	1	—	1	3	—	—	—	—	—	—	2	3	5
Madras	656	Madras	1868	—	2	10	—	1	13	—	—	2	4	—	1	8	7	1	—	6	—	—	—	17	12	29
	645		1867	1	3	2	1	—	7	—	—	—	—	2	2	2	4	1	—	1	—	1	—	7	6	13
Ditto	168	Great Southern of India.	1868	—	1	1	1	—	3	1	4	—	—	—	—	1	3	—	—	—	1	—	—	2	8	10
	135		1867	—	1	—	—	2	3	—	—	—	—	—	—	3	—	2	—	1	—	—	—	6	—	6
Ditto	19	Conjeveram Tramway	1868	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19		1867	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bombay	872	Great Indian Peninsula	1868	20	71	2	6	14	113	—	—	2	3	5	14	23	32	1	—	12	5	2	1	45	55	100
	847		1867	14	19	15	16	9	73	12	22	—	1	4	8	32	28	—	1	17	5	—	—	65	65	130
Ditto	306	Bombay, Baroda, and Central India.	1868	3	7	—	17	—	27	1	—	—	1	—	2	9	10	—	—	2	2	1	—	13	15	28
	306		1867	11	8	—	6	6	31	1	5	—	3	—	2	17	15	—	—	5	1	—	—	23	26	49
Ditto	109	Scinde	1868	2	2	—	8	12	24	—	—	—	—	—	1	—	2	—	—	—	1	—	—	—	4	4
	109		1867	1	5	—	5	2	13	—	—	—	—	—	3	—	2	1	—	1	—	—	—	2	5	7
India	3,958	[illegible]	1868	64	104	27	34	30	259	16	42	9	22	10	50	100	139	3	3	45	13	9	5	192	274	466
	3,724		1867	58	57	20	31	35	201	13	33	2	15	10	23	95	118	4	1	52	13	3	5	182	208	390

TABLE No. II.—NUMERICAL ABSTRACT of ACCIDENTS of all Classes on all Railways open for Traffic in India during the Year 1868.

—	Bengal, North-western Provinces, Oude and Punjab.														Madras.						Bombay.						Total.		
	E. Indian.		E. Bengal.		C. & S.E.		O. & R.		N. & A.		Punjab.		Delhi.		Madras.		G.S. of I.		Conjeveram Tramway.		G. I. P.		B. B. & C. I.		Scinde.				
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed & Injured.
PASSENGERS.																													
From causes beyond their own control, viz.:—																													
From accidents to trains	—	31	14	6	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	1	—	—	—	15	40	55
From other causes	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	1	2	3
Total	—	32	14	6	—	—	—	—	—	—	—	—	—	—	—	—	1	4	—	—	—	—	1	—	—	—	16	42	58
Per million of passengers	—	6·36	10·8	4·62	—	—	—	—	—	—	—	—	—	—	—	—	1·27	5	—	—	—	—	·6	—	—	—	·99	2·59	3·58
From their own misconduct or incaution	5	13	—	—	—	—	—	1	—	—	—	—	—	—	2	4	—	—	—	—	2	3	—	1	—	—	9	22	31
Per million of passengers	·99	2·58	—	—	—	—	—	—	—	—	—	—	—	—	·94	1·88	—	—	—	—	·57	·86	—	·6	—	—	·55	1·35	1·9
Total from all causes	5	45	14	6	—	—	—	1	—	—	—	—	—	—	2	4	1	4	—	—	2	3	1	1	—	—	25	64	89
SERVANTS OF COMPANIES AND OF CONTRACTORS.																													
From causes beyond their own control	4	32	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	5	14	—	2	—	1	10	50	60
From their own misconduct or incaution	54	83	3	1	—	—	—	—	—	—	2	1	—	—	8	7	1	3	—	—	23	32	9	10	—	2	100	139	239
Total from all causes	58	115	4	1	—	—	—	—	—	—	2	1	—	—	8	8	1	3	—	—	28	46	9	12	—	3	110	189	299
OTHER PERSONS.																													
Crossing at level crossings	1	3	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	3	3	6
Trespassers, including suicide	24	4	1	—	—	—	—	—	—	—	—	—	—	—	6	—	—	1	—	—	12	5	2	2	—	1	45	13	58
Miscellaneous	6	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	—	—	—	9	5	14
Total from all causes	31	11	1	—	—	—	—	—	—	—	—	—	—	—	7	—	—	1	—	—	15	6	3	2	—	1	57	21	78
Grand total of all classes from all causes	94	171	19	7	—	—	—	1	—	—	2	1	—	—	17	12	2	8	—	—	45	55	13	15	—	4	192	274	466
Mean length of railway open during the year (miles)	1,345		113		29		42		—		246		53		656		168		19		872		306		109				3,958
Number of passengers carried	5,026,018		1,297,543		311,631		338,054		—		668,590		289,452		2,122,527		785,972		93,696		3,493,312		1,655,988		146,076				16,228,859
Train mileage (goods and passengers)	4,898,427		351,410		41,037		65,226		—		344,700		80,453		1,416,471		303,654		28,709		2,935,154		793,713		172,702				11,431,656

Table No. III.

Shewing the Total Number of Accidents to Persons of all kinds, and to Trains, &c., on all Railways open for Traffic in each Presidency of India, during the Year 1868.

Presidencies.		Mean Length of Railway open.	Total Number of Train Miles.	Train Miles per Mile open.	Total Number of Accidents to Trains, &c., of all kinds.	Total Number of Passengers carried.	Average Number of Passengers per Mile opened.	Passengers.		Servants.				Trespassers, &c.		Total.		
								Killed.	Injured.	Beyond own Control.		Within own Control.		Killed.	Injured.	Killed.	Injured.	Killed and Injured.
										Killed.	Injured.	Killed.	Injured.					
Bengal	1868	1,828	5,781,253	3,162	79	7,931,288	4,338	19	52	5	32	59	85	32	11	115	180	295
	1867	1,690	6,334,941	3,706	74	7,134,090	4,221	2	17	4	8	41	69	32	12	79	106	185
Madras	1868	843	1,748,834	2,074	16	3,002,195	3,561	3	8	—	1	9	10	7	1	19	20	39
	1867	780	1,599,383	2,051	10	2,495,787	3,200	—	—	2	2	5	4	6	—	13	6	19
Bombay	1868	1,287	3,901,569	3,031	164	5,295,376	4,115	3	4	5	17	32	44	18	9	58	74	132
	1867	1,262	3,831,565	3,035	117	5,246,653	4,156	13	31	4	13	49	45	24	7	90	96	186
India	1868*	3,958	11,431,656	2,888	259	16,228,859	4,100	25	64	10	50	100	139	57	21	192	274	466
	1867†	3,705	11,766,389	3,176	201	14,866,530	4,012	15	48	10	23	95	118	62	19	182	208	390

* Exclusive of figures for the Nulhattee and Azimgunge Light Railway, but including those for the Conjeveram Tramway.

† Exclusive of figures for both the above lines.

CAPITAL.

Expenditure.

29. The total amount of capital which up to the 31st March 1869 had been raised for Indian railways was 82,376,625*l.* Of this sum 6,233,718*l.* was added during the past year.

30. The expenditure by the companies, which is exclusive of the cost of the land granted by the Government, has been about 79,000,000*l.* The amount expended during the year was 4,548,000. Of this 600,000*l.* is owing to the Government on account of advances made to two or three companies, so that there is a sum of about 3,400,000*l.* now available for expenditure by the railway companies during the ensuing year. This expenditure, which will be shared chiefly by the Great Indian Peninsula, the East Indian, the Delhi, and the Oude and Rohilcund companies, and which includes the cost of stores on revenue account sent from this country for all the railways, is expected to amount to 6,600,000*l.* To arrive however at the sum which will probably be expended on construction or *capital* account during the year, a million and a half should be deducted for *revenue* expenses, and half a million must be added for the cost of the works now being undertaken by Government.

31. The following table gives the annual expenditure by all the companies :—

Year.	Miles opened during the Year.	Expended in England.	Expended in India.	Total.
		£	£	£
Up to 1850 -	—	130,375	44,781	175,156
In 1851 -	—	154,212	197,111	351,323
„ 1852 -	—	174,920	252,640	427,560
„ 1853 -	22¼	252,484	418,165	670,649
„ 1854 -	50¼	960,878	768,710	1,729,588
„ 1855 -	98¼	1,939,101	1,431,904	3,371,005
„ 1856 -	101¾	1,752,813	1,765,094	3,517,907
„ 1857 -	143	1,324,873	2,092,395	3,417,268
„ 1858 -	145	1,940,052	3,551,073	5,491,125
„ 1859 -	74½	2,507,949	4,654,923	7,162,872
„ 1860 -	208	2,396,924	5,192,846	7,589,770
„ 1861 -	759	1,596,010	4,962,604	6,558,614
„ 1862 -	747	1,854,289	3,956,563	5,810,852
„ 1863 -	233½	1,411,661	3,360,114	4,771,775
„ 1864 -	402¼	1,387,699	2,418,345	3,806,044
„ 1865 -	388½	2,192,090	3,192,323	5,384,413
„ 1866 -	205	3,942,598	3,816,957	7,759,555
„ 1867 -	349	4,045,584	2,979,376	7,024,960
„ 1868 -	174¾	1,935,012	2,613,626	4,548,638

32. The estimated cost of the lines, as at present sanctioned, and in the hands of the companies, is 97,200,000*l.* Of this 14,000,000*l.* remains to be raised, but the expenditure will be spread over five or six years.

33. Of the 82,376,620*l.* which has been raised, only 800,781*l.*, or less than one per cent., was subscribed in India. The expenditure in India has been about 47,400,000*l.* compared with 31,600,000*l.* in England.

34. The amount raised by debentures is 15,976,515*l.* Particulars of the debenture loans will be found on page 17.

35. The following statements, which have been prepared in the Accountant General's office, furnish detailed accounts of the past and future expenditure of each company :—

Statement No. 1.

Shewing the Amount of Capital estimated to be required for each Undertaking as now sanctioned, the Amount authorised to be raised, the Amount raised, and the Amount expended, to 31st March 1869.

Railway.	Estimated Cost of Lines.	Amount authorised to be raised to 31st March 1869.					Amount raised in England to 31st March 1869.				Amount raised in India to Date of last Advices.	Total Amount raised to 31st March 1869.	Total Amount expended to 31st March 1869 (partly estimated).
		Share Capital.	Debentures.		Debenture Stock.	Total.	Share Capital.	Debentures.		Debenture Stock.			
			Convertible into Shares.	Inconvertible.				Convertible.	Inconvertible.				
	£	£	£	£	£	£	£	£	£	£	£	£	£
East Indian { Main line	27,500,000	19,975,590	2,024,410	4,450,000	—	26,450,000	19,619,072	1,993,310	4,450,000	—	310,283	26,372,665	26,571,270
East Indian { Jubbulpore line	3,500,000	2,196,140	1,003,860	—	—	3,200,000	2,152,295	1,003,860	—	—	7,665	3,163,820	2,603,701
Great Indian Peninsula	26,000,000	17,000,000	—	4,000,000	600,000	21,600,000	16,051,502	—	3,926,950	600,000	394,449	20,972,901	19,653,805
Madras { Main line	6,500,000	4,394,700	1,520,250	335,050	—	6,250,000	4,338,214	1,411,150	335,050	—	—	6,084,414	9,115,127
Madras { Bellary line	4,500,000	3,750,000	—	—	—	3,750,000	3,686,355	—	—	—	—	3,686,355	
Scinde	2,250,000	1,920,200	179,800	150,000	—	2,250,000	1,885,043	179,800	124,600	—	21,775	2,211,218	2,013,365
Indus Flotilla	700,000	542,600	81,400	—	—	624,000	332,505	25,400	—	—	—	357,905	593,683
Punjab	3,000,000	2,150,000	100,000	300,000	200,000	2,750,000	1,983,894	—	300,000	—	11,157	2,295,051	2,623,533
Delhi	6,000,000	5,000,000	—	—	—	5,000,000	4,819,038	—	—	—	17,836	4,836,874	4,019,623
Bombay, Baroda, and Central India	7,750,000	6,285,900	1,114,100	100,000	—	7,500,000	6,232,600	1,114,095	100,000	—	21,664	7,468,359	7,399,039
Eastern Bengal	2,800,000	2,238,000	—	610,700	—	2,848,700	1,954,885	—	610,700	—	14,731	2,580,316	2,589,242
Great Southern of India	1,700,000	1,080,400	169,600	100,000	—	1,350,000	1,079,179	169,600	100,000	—	1,221	1,350,000	1,408,472
Oude and Rohilkund	5,000,000	3,800,000	200,000	—	—	4,000,000	864,747	132,000	—	—	—	996,747	395,795
Total*	97,200,000	70,333,530	6,393,420	10,045,750	800,000	87,572,700	64,999,329	6,029,215	9,947,300	600,000	800,781	82,376,625	78,986,655

* The Calcutta and South-eastern Railway, which has been taken by the Government, is not included in this list. The capital expended on it was about £616,000.

Accountant General's Department,
3d April 1869.

W. G. Goodliffe,
Accountant General.

Statement No. 2.

Shewing the Amount raised and expended by each Company during the Year ended 31st March 1869.

Railway.	Sums standing to the Credit of the Companies on the 31st March 1868.	Sums advanced to the Companies on the 31st March 1868.	Amount raised between 1st April 1868 and 31st March 1869.		Amount expended.				Total raised during the Year ended 31st March 1869.	Total Amount expended during the Year ended 31st March 1869 (partly estimated).
					In England, between 1st April 1868 and 31st March 1869.	In India.				
			Share Capital.	Debenture Stock.		Date to which Accounts have been received.	Amount.	Estimated Expenditure between dates specified and 31st March 1869.		
	£	£	£	£	£		£	£	£	£
East Indian - - -	—	60,608	1,097,838	—	291,098	31st Dec. 1868	264,618	120,000	1,097,838	675,716
Great Indian Peninsula - -	578,039	—	2,123,098	600,000	1,025,326	"	656,715	300,000	2,723,098	1,982,041
Madras - - - -	805,131	—	220,328	—	150,758	"	159,059	60,000	220,328	369,817
Scinde - - - -	137,268	—	113,724	—	33,796	"	15,343	4,000	113,724	53,139
Indus Flotilla - - -	—	243,478	26,500	—	12,527	"	5,273	1,000	26,500	18,800
Punjab - - - -	—	542,972	254,685	—	9,681	30th Nov. 1868	22,514	8,000	254,685	40,195
Delhi - - - -	209,348	—	1,383,350	—	159,840	"	415,607	200,000	1,383,350	775,447
Bombay, Baroda, and Central India	279,266	—	99,196	—	92,359	31st Dec. 1868	166,783	50,000	99,196	309,142
Eastern Bengal - - -	161,136	—	60,800	—	97,044	"	103,818	30,000	60,800	230,862
Great Southern of India - -	2,030	—	—	—	29,606	"	22,896	8,000	—	60,502
Oude and Rohilkund - -	379,730	—	254,199	—	32,977	—	—	—	254,199	32,977
Total - -	2,551,948	847,058	5,633,718	600,000	1,935,012	—	1,832,626	781,000	6,233,718	4,548,638

Accountant General's Department,
3d April 1869.

W. G. Goodliffe,
Accountant General.

Statement No. 3.

Estimated Expenditure for the Year 1869–70 for Purposes of Capital and Revenue.

Railway.	Estimated Expenditure from 1st April 1869 to 31st March 1870.			Sum standing to the Credit or Debit of the Companies, 1st April 1869.	Sums to be raised by the Companies during 1869–70.	Total Amount now placed and to be placed in Home Treasury of Government in 1869–70.	Estimated Balance on the 1st April 1870.
	In England.	In India.	Total.				
	£	£	£	£	£	£	£
East Indian	300,000	700,000	1,000,000	Cr. 361,000	800,000	1,161,000	161,000
Great Indian Peninsula	500,000	1,500,000	2,000,000	Cr. 1,320,000	1,000,000	2,320,000	320,000
Madras	220,000	250,000	470,000	Cr. 655,000	—	655,000	185,000
Bombay and Baroda	100,000	250,000	350,000	Cr. 70,000	330,000	400,000	50,000
Scinde	46,000	10,000	56,000	Cr. 196,000	—	196,000	140,000
Punjab	50,000	50,000	100,000	Deb. 328,000	450,000	450,000	22,000
Delhi	120,000	600,000	720,000	Cr. 817,000	200,000	1,017,000	297,000
Indus Flotilla	12,000	10,000	22,000	Deb. 236,000	270,000	270,000	12,000
Eastern Bengal	20,000	260,000	280,000	Deb. 9,000	300,000	300,000	11,000
Great Southern of India	10,000	20,000	30,000	Deb. 58,000	100,000	100,000	12,000
Oude and Rohilkund	700,000	900,000	1,600,000	Cr. 600,000	1,100,000	1,700,000	100,000
Total	2,078,000	4,552,000	6,628,000	Cr. 4,019,000 Deb. 631,000 Net Cr. 3,388,000	4,553,000	8,569,000	1,310,000

36. The amount of capital issued by each company in the shape of debentures, together with the rate of interest and the dates at which the respective loans expire, will be found in the subjoined statement :— Debentures.

STATE of DEBENTURE LOANS on the 31st March 1869.

Railway.	Amount. Convertible.	Amount. Inconvertible.	Amount. Total.	Rate of Interest	Date at which Loan expires.	Whether renewable.
	£	£				
East Indian	35,700	—		4½	5th April 1869.	
"	6,000	—		4½	10th July 1869.	
"	356,040	—		5	5th October 1869.	
"	190,000	—		5	20th January 1870.	
"	1,003,860	—		5	23d March 1870	Renewable.
"	—	1,500,000		5	10th August 1870.	
"	—	1,500,000		5	15th Dec. 1870.	
"	664,920	—		5	1st April 1871.	
"	690,650	—		5	9th August 1871	Renewable.
"	50,000	—		4½	10th July 1872.	
"	—	1,000,000		4½	22d August 1872.	
"	—	440,000		4½	19th March 1873.	
"	—	10,000		4½	19th March 1875.	
	2,997,170	4,450,000	7,447,170			
Great Indian Peninsula	—	194,600		5	31st Dec. 1869.	
" "	—	521,000		4½	" "	
" "	—	36,900		5	30th June 1870.	
" "	—	67,550		5	31st Dec. 1870.	
" "	—	313,700		4½	" "	
" "	—	382,350		5	30th June 1871.	
" "	—	6,400		4½	" "	
" "	—	583,400		5	31st Dec. 1871.	
" "	—	1,074,450		5	" "	Renewable.
" "	—	435,000		5	30th June 1872.	
" "	—	42,800		4½	" "	
" "	—	268,800		5	30th June 1873.	
	—	3,926,950	3,926,950			
Madras	37,900	24,050		4½	1st July 1869.	
"	202,600	—		5	1st January 1870.	
"	54,900	—		5	1st July 1870.	
"	117,550	311,000		5	1st January 1871.	
"	21,000	—		5	1st July 1871.	
"	479,700	—		5	1st January 1872.	
"	497,500	—		5	" "	Renewable.
	1,411,150	335,050	1,746,200			
Scinde	179,800	—		5	1st May 1870.	
"	—	124,600		4½	1st September 1870.	
	179,800	124,600	304,400			
Indus Steam Flotilla	25,400	—	25,400	5	1st May 1871.	
Punjab	—	300,000	300,000	4½	1st July 1870.	
Bombay, Baroda, and Central India	384,800	—		5	1st January 1870	Renewable.
" " "	—	100,000		4½	15th January 1871.	
" " "	491,900	—		5	1st July 1871	Renewable.
" " "	237,395	—		5	1st July 1872.	
	1,114,095	100,000	1,214,095			
Eastern Bengal	—	18,000		5	1st November 1869.	
"	—	15,250		5	12th April 1871.	
"	—	333,450		5	12th October 1871.	
"	—	62,000		5	1st November 1871	Renewable.
	—	181,900		5	1st November 1874.	
	—	610,700	610,700			
Great Southern of India	500	—		5	1st January 1870.	
" "	58,300	—		5½	1st July 1870.	
" "	—	25,000		4½	1st January 1871.	
" "	—	75,000		4	1st July 1871.	
" "	10,400	—		5	" "	
" "	500	—		5	1st January 1872.	
" "	32,500	—		5	1st July 1872.	
" "	10,000	—		5	1st January 1874.	
" "	57,400	—		5	1st July 1874.	
	169,600	100,000	269,600			
Oude and Rohilkund	5,600	—		5	31st January 1870	Renewable.
" "	200	—		5	14th February 1870	
" "	125,600	—		5	15th April 1870	
" "	200	—		5	28th July 1871	
" "	100	—		5	9th March 1872	
" "	300	—		5	24th March 1872	
	132,000	—	132,000			
			15,976,515			

xpenditure.

37. The statement given below relates to the manner in which the expenditure has been distributed among the various works and departments of the railways:—

Railway.	Works and Bridges.	Permanent Way and Stations.	Freight and Insurance.	Rolling Stock and Engines.	Establishments.	Miscellaneous, Electric Telegraph, Stores, &c.
	£	£	£	£	£	£
East Indian	9,125,000	6,785,000	2,885,000	3,265,000	3,530,000	3,502,000
Great Indian Peninsula	7,695,000	5,693,000	Including stores, 2,031,000	2,249,000	1,288,000	170,000
Madras	2,669,000	3,203,000		852,000	733,000	376,000
Bombay, Baroda, and Central India	2,875,000	1,776,000	525,000	1,066,000	673,000	294,000
Scinde	564,800	366,000	208,000	197,000	263,000	157,000
Punjab	218,000	796,000	445,000	449,000	403,000	215,000
Delhi	962,000	1,827,000	53,000	383,000	175,000	450,000
Indus Flotilla	Steamers, &c., 565,000	Warehouses, 44,330	34,000	—	63,000	49,000
Eastern Bengal	1,693,000		Included under other heads.	275,000	249,000	306,000
Calcutta and South-eastern	135,000	218,000	Do.	144,000	82,000	23,000
Great Southern of India	928,000		Do.	96,000	154,435	52,000
Oude and Rohilkund	85,750	130,000	Do.	77,300	64,000	104,000

REVENUE AND TRAFFIC.

raffic receipts.

38. The year 1867–68 commenced with diminishing returns, and did not quite recover the lost ground before its close, but towards the end an improvement was visible, and the lines presented proofs, which have since been realised, of a reviving prosperity. During the winter season the traffic has exceeded all former returns, and the joint gross earnings for several weeks from the East Indian and the Great Indian Peninsula Railways alone have amounted to 100,000*l.* a week, or at the rate of more than 5,000,000*l.* a year. Another satisfactory feature of the *last* accounts is that economy in working the lines is shown by a reduction in the expenses.

39. The net revenue for the year ending 30th June 1868 was 2,100,122*l.*, being 237,178*l.* less than that of the previous year.

40. The gross receipts were 4,831,395*l.*, and the working expenses were 2,731,273*l.*, as compared with 4,875,112*l.* and 2,537,812*l.* of last year.

41. The actual expenditure on the lines which have earned the above amount last year may be taken at 71,000,000*l.*, so that, joining the good with the bad, the dividend realisable was on the average about 3 per cent.

42. The following table gives the receipts and expenses of each company during the year:—

RECEIPTS and EXPENSES of the RAILWAYS for the Year ending 30th June 1868.

Railway.	Receipts.				Expenses.			Percentage of Expenses to Gross Receipts.	Net Receipts.
	Passengers, &c.	Goods and Minerals.	Telegraph and Sundries.	Total.	Working.	Maintenance.	Total.		
	£	£	£	£	£	£	£		£
East Indian	681,826	1,351,992	32,084	2,065,902	828,925	234,930	1,063,855	51·49	1,002,047
Great Indian Peninsula	347,321	1,016,114	16,264	1,379,699	664,115	206,677	870,792	63·11	508,907
Madras: South-west Line	151,878	231,126	15,188	398,192	115,492	61,244	176,736	44·38	221,456
„ North-west Line	29,215	86,281	1,320	116,816	33,531	6,968	40,499	34·66	76,317
Bombay, Baroda, and Central India	182,363	199,072	31,004	412,439	201,137	78,491	279,628	67·79	132,811
Scinde	20,503	89,039	2,010	111,552	67,111	20,543	87,654	78·57	23,898
Punjab	38,210	56,321	2,069	96,600	57,097	14,858	71,955	74·48	24,645
Delhi	7,522	1,194	62	8,778	15,373	15	15,388	175·3	6,610
Eastern Bengal	70,386	75,222	3,076	148,684	57,117	15,503	72,620	48·84	76,064
Great Southern of India	37,478	24,763	1,204	63,445	26,531	4,264	30,795	48·53	32,650
Oude and Rohilkund	24,773	4,357	158	29,288	19,346	2,005	21,351	72·9	7,937
Totals	1,591,475	3,135,481	104,439	4,831,395	2,085,775	645,498	2,731,273	56·53	2,100,122

Statement of Traffic Results for the Year ending 30th June 1868.

Railway.	Length of Line Open.			Length of Sidings.	Passenger Traffic.								Goods Traffic.							Number of Trains run.					No. of Miles travelled by Trains, exclusive of Shunting, &c.				
					Number of Passengers (exclusive of Holders of Season and Periodical Tickets).				Number of Holders of Season and Periodical Tickets.				Live Stock.			Minerals.														
	Double.	Single.	Total.		1st Class.	2d Class.	3d Class, including Parliamentary, &c.	Total Passengers.		Carriages.	Horses.	Dogs.	Cattle.	Sheep.	Pigs.	Coal and Coke.	Other Minerals.	Total.	General Merchandise.	Passenger Trains.	Goods and Mineral Trains.	Mineral Trains.	Mixed Trains.	Total.	By Passenger Trains.	By Goods and Mineral Trains.	By Mineral Trains.	By Mixed Trains.	Total.
										No.	No.	No.	No.	No.	No.	Tons.	Tons.	Tons.	Tons.										
East Indian - -	175	956	1,131	245½	35,101	116,434½	4,682,294	4,833,829½	557	1,228	6,350	6,617	1,088	106	7	261,533	—	261,533	708,638	7,023	18,232	—	8,504	33,759	1,701,047	3,146,479	—	63,441½	4,910,967½
Great Indian Peninsula - - -	100½	773½	874	—	31,749	192,039	3,384,107	3,607,895	1,412	514	8,426	6,495	3,913	343,072	8	81,079	307,765	388,844	503,259	10,474	17,350	5,595	7,593	38,012	854,622	1,190,864	37,392	690,644	2,773,522
Madras (South-west Line) -	—	492	492	—	7,788	58,915	1,536,158	1,602,861	6	801	3,781	2,723	6,243			—	—	—	296,906	—	—	—	7,102	7,102	—	—	—	1,134,320	1,134,320
„ (North-west Line) -	—	153	153	—	907½	5,437	427,476	433,820½	—	216	705	550	667			—	—	—	92,894	—	—	—	3,510	3,510	—	—	—	252,620	252,620
Bombay, Baroda, and Central India - -	15	291	306	—	7,701	47,321	1,580,476	1,635,498	32	293	2,207	1,991	5,087	196,061	254	6,255	1,831	8,086	163,988	1,077	3,983	4,195	2,066	11,321	230,200	317,564	39,918	93,882	681,564
Scinde - - -	5	104	109	43	1,810	5,715	134,508	142,003	2,894	95	2,879	691	1	168	2	5,300	—	5,300	160,604	315	1,205	—	1,019	2,539	33,429	118,652	—	61,253	213,334
Punjab - - -	—	246	246	—	6,274½	37,729½	568,606	612,610	—	48	2,012	1,190	30	133	—	—	—	—	63,340	3,412½	1,809	—	—	5,221½	204,084½	159,721	—	—	363,805½
Delhi - - - -	—	53	53	—	2,530	6,796	129,740	139,066	—	17	392	521	9	20	—	—	—	—	8,373½	—	—	—	1,340	1,340	—	—	—	35,215	35,215
Eastern Bengal -	—	113½	113½	—	36,844½	42,183	1,167,361	1,240,388½	275	137	640	982	131	575	—	9,062	12,661	21,723	110,032	2,863	1,617	—	63	5,110	169,986½	124,711½	—	52,920	347,618
Great Southern of India - - -	—	168	168	12	2,581	3,936	558,020	564,537	—	160	593	866	39	9	—	—	—	Railway Materials, 9,774	49,306	All trains are "Mixed."—No return made					—	—	—	269,612½	269,612½
Oude and Rohilkund	—	42	42	4½	2,761½	9,060½	232,171½	243,993½	—	63	117	600	169	23	—	—	—	—	18,412	—	—	—	1,422	1,422	—	—	—	59,673	59,673

STATEMENT of TRAFFIC RESULTS for the Year ending 30th June, 1868—*continued.*

Railway.	Number of Engines employed to perform the Work described in the foregoing Columns.	Average Fares per Mile.			Receipts (Gross) from Passenger Traffic.										Receipts (Gross) from Goods Traffic.							Miscellaneous Receipts.	Total Receipts from all Sources of Traffic.	Average Receipts per Train Mile.
					Receipts from Passengers.						Total Receipts from Excess Luggage, Parcels, Carriages, Horses, Dogs, &c., conveyed in Passenger Trains.	Receipts from Mails.	Total Receipts from Passenger Traffic.	Receipts per Train Mile from Passengers.		Minerals.								
		1st Class.	2d Class.	3d and 4th Class.	1st Class.	2d Class.	3d Class, including Parliamentary, &c.	Holders of Season and Periodical Tickets.	Special Trains.	Total from Passengers.					Live Stock.	Coal and Coke.	Other Minerals.	Total from Minerals.	General Merchandise.	Total Receipts from Goods Traffic.	Receipts per Train Mile from Goods.			
		d.	*d.*	*d.*	£	£	£	£	£	£	£	£	£	*s.*	£	£	£	£	£	£	*s.*	£	£	*s.*
East Indian	352	*	*	*	37,616	49,592	480,773	2,930	1,972	572,887	77,334	773	650,996	2·6	3,391	150,503	—	150,503	1,172,003	1,325,899	5·2	28,231	2,005,126	8·1
Great Indian Peninsula	170	2·06	1·03	·45	19,134	30,269	243,545	2,118	3,199	298,264	42,723	6,374	347,361	2·5	12,276	47,357	20,556	67,913	937,759	1,017,948	7·3	—	1,365,308	9·8
Madras (South-west Line)	81	2·06	·68	·34	10,987	12,166	108,456	77	293	131,979	17,921	—	149,900	2·6	650	—	—	—	230,475	231,125	4·07	17,167	398,192	7·
„ (North-west Line)	19	2·06	·68	·34	673	808	24,605	—	—	26,086	3,129	—	29,215	2·3	145	—	—	—	85,702	85,847	6·7	1,754	116,816	9·2
Bombay, Baroda, and Central India	*	2·06	1·	·50	3,947	10,476	151,388	44	936	166,791	15,508	205	182,504	5·3	9,561	2,421	15,522	17,943	188,144	215,648	6·3	—	398,152	11·6
Scinde	19	1·44	1·03	·40	876	1,675	15,008	63	—	17,622	2,882	—	20,504	1·9	6	262	—	262	88,771	89,039	8·3	2,010	111,553	10·4
Punjab	*	1·77	·94	·27	2,347	6,197	25,440	—	—	33,984	4,145	80	38,210	2·1	38	—	—	—	56,282	56,320	3·09	—	94,531	5·19
Delhi	*	2·06	1·03	·31	522	483	4,279	—	—	5,284	402	9	5,695	3·2	2	—	—	—	1,099	1,101	·6	—	6,796	3·8
Eastern Bengal	*	2·06	1·03	·51 ·34	3,927	3,111	56,809	598	—	64,445	5,349	4,209†	74,003	4·2	95	4,117	6,037	10,154	64,974	75,223	4·3	—	149,226	8·5
Great Southern of India	15	2·06	·57	·34	821	522	34,174	—	67	35,584	1,893	—	37,477	2·7	56	—	—	—	24,707	24,763	1·8	1,205	63,445	4·7
Oude and Rohilkund	4	2·16	·62	·33	1,070	1,262	12,266	—	—	14,598	1,897	—	16,495	5·5	13	—	—	—	5,330	5,343	1·7	—	21,838	7·3

* Not stated. † Mails, Telegraphs, &c.

STATEMENT shewing the EXPENSES connected with the MAINTENANCE and WORKING of the RAILWAYS, in the Gross, and per Train Mile, for the Year ending 30th June 1868.

Railway.	Maintenance and Renewal of Way and Works.		Cost of producing Locomotive Power by Wages and Materials.		Repairs and Renewals of Carriages and Waggons.		Traffic Charges.				Rates and Taxes.		Compensation for Personal Injury, &c.		Compensation for Damages and Loss of Goods.		Legal and Parliamentary Expenses.		Miscellaneous Working Expenditure, not included in the foregoing.		Total Working Expenditure.	
							Coaching.		Merchandise.													
	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.	Gross.	Per Train Mile.
	£	d.	£	d.	£	d.	£	d.	£	d.	£	d.	£	d.	£	d.	£	d.	£	d.	£	s.
East Indian	230,222	11·3	336,979	16·4	83,170	4·	180,306	8·8	Entered under Coaching	—	3,579	·17	111	·005	2,381	·11	966	·04	163,188	7·9	1,000,906	4·
Great Indian Peninsula	206,677	17·8	335,508	29·	66,760	5·7	48,182	4·1	124,937	10·8	—	—	5,958	·4	1,962	·16	951	·07	79,855	6·8	870,792	6·2
Madras (South-west Line)	63,395	13·4	62,923	13·3	6,284	1·3	12,620	2·7	18,881	3·9	292	·05	—	—	51	·01	101	·02	12,240	2·6	176,737	3·1
„ (North-west Line)	7,790	7·3	14,188	13·4	1,507	1·4	1,854	1·7	3,994	3·7	4	—	—	—	—	—	—	—	11,159	10·5	40,499	3·2
Bombay, Baroda, and Central India	78,491	29·	87,972	30·9	32,647	11·5	16,966	5·9	24,352	8·5	610	·2	—	—	2,209	·7	1,767	·6	34,614	12·1	279,628	8·2
Scinde	20,543	23·1	35,178	39·5	3,958	4·4	18,722	21·	Entered under Coaching.	—	—	—	—	—	Entered under Coaching.	—	118	·13	9,136	10·2	87,655	8·2
Punjab	14,858	9·7	26,517	16·6	1,523	1·	12,313	8·	3,544 Partly entered under Coaching.	2·3	192	·12	—	—	136	·08	27	·01	12,841	8·4	71,955	3·9
Delhi	—	—	6,810	31·3	490	2·3	5,547	25·8	Entered under Coaching.	—	—	—	—	—	48	·22	—	—	2,134	9·9	15,034	5·8
Eastern Bengal	15,504	10·7	18,890	13·	4,511	3·1	8,816	6·1	7,912	5·4	159	·11	—	—	1,400	·9	212	·14	15,215	10·5	72,619	4·1
Great Southern of India	6,033	5·3	15,206	13·5	3,042	2·7	4,285	3·8	Entered under Coaching.	—	—	—	—	—	—	—	—	—	2,148	1·9	30,794	2·2
Oude and Rohilkund	379	1·5	4,507	18·1	1,193	4·8	4,232	17·	Entered under Coaching.	—	—	—	—	—	16	·06	—	—	5,630	22·7	15,960	5·3

Receipts and expenses.

43. The tables on pp. 19–21, relating to the receipts and working expenses of each railway, furnish statistics which are useful and interesting, as well for comparison as for the general results which they exhibit. The number of passengers conveyed was 15,066,530, as compared with 13,746,354 of the previous year, and 12,867,000 of the year before that. Of the 15,000,000 conveyed last year, only 130,000, or less than 1 per cent., were 1st class, and 535,000, or about $3\frac{1}{2}$ per cent., were 2nd class.

44. The receipts from passengers were 1,591,475*l.* compared with 1,376,812*l.*, and from goods 3,135,481*l.*, compared with 3,499,868*l.* of the previous year.

45. It will be observed that the proportion per cent. of expenditure to total receipts varies considerably. On the Scinde line, which is short and expensive to work, and with a very moderate traffic, it is 78·57; on the Madras North-west line it is only 34·66.* On English lines the variation is greater still, the working expenses on some amounting to 23, 41, and 51 per cent. only, and on others to 89 and even more than 100 per cent., compared with the receipts. The average in 1866 was, England and Wales 49, Scotland 49, Ireland 57.

Train mileage receipts and expenses.

46. The train mileage receipts and expenses, which are the best tests that can be applied to the working of a railway, are shown in the subjoined table:—

Train Mileage Receipts and Expenses, 1867–68.

Railway.	Receipts.	Expenses.										
	Total from all Sources.	Maintenance.	Locomotive.	Rolling Stock.	Passenger Traffic.	Goods Traffic.	Rates and Taxes.	Personal Compensation.	Compensation for Damage.	Legal Expenses.	Miscellaneous.	On account of all Departments.
	s.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*s.*
East Indian	8·1	11·3	16·4	4·	8·8		·17	·005	·11	·04	7·9	4·
Great Indian Peninsula	9·8	17·8	29·	5·7	4·1	10·8	—	·4	·16	·07	6·8	6·2
Madras, South-west Line	7·	13·4	13·3	1·3	2·7	3·9	·05	—	·01	·02	2·6	3·1
„ North-west „	9·	7·3	13·4	1·4	1·7	3·7	—	—	—	—	10·5	3·2
Bombay, Baroda, and Central India	11·6	27·6	30·9	11·5	5·9	8·5	·2	—	·7	·6	12·1	8·2
Scinde	10·4	23·1	39·5	4·4	21·		—	—	—	·16	10·2	8·2
Punjab	5·19	9·7	16·6	1·	8·	2·3	·12	—	·08	·01	8·4	3·9
Delhi	3·8	—	31·3	2·3	25·8		—	—	·22	—	9·9	5·8
Eastern Bengal	8·5	10·7	13·	3·1	6·1	5·4	·11	—	·9	·14	10·5	4·1
Great Southern of India	4·7	5·3	13·5	2·7	3·8		—	—	—	—	1·9	2·2
Oude and Rohilkund	7·3	1·5	18·1	4·8	17·		—	—	·06	—	—	5·3

47. A considerable difference will be observed in the train mileage receipts and expenses of the various lines. That large receipts produce little benefit unless attended with a moderate expenditure is shown by the example of the Bombay and Baroda and of the Scinde companies, whose train mileage receipts are largest and whose net receipts are the least. The maintenance charges of these lines are 27*d.* and 23*d.* per train mile respectively, while those of the East Indian, Eastern Bengal, and Great Southern are only 11·3*d.*, 10·7*d.*, and 5·3*d.* The great difference may in some measure be accounted for by the exceptional expenses on account of the repairs of works damaged by floods. On branches of the same railway there is sometimes a considerable difference in the maintenance charges. On the North-west line of the Madras the cost per train mile has been 7·3*d.*, on the South-west 13·4*d.* An example is furnished on this line of the results produced by employing iron sleepers. On the portion which is laid with wooden sleepers the expense of maintenance was 113*l.* 5*s.* 10*d.* per mile. On the part that was laid with iron it was only 69*l.* 7*s.* 4*d.* per mile. If proof were wanting, it is thus given that where a suitable ballast for iron sleepers is available, it is true economy to use them.

Locomotive Department.

48. The next item of expenditure which presents the greatest contrast on different lines is that of the Locomotive Department. While the train mileage cost of this department on the East Indian is 16·4*d.*, on the Great Indian Peninsula it is 29*d.*, and on the Scinde 39·5*d.* The reason of this is plain. The East Indian pays on an average about 20*s.* a ton for native coal. The lines on the western coast are at present

* The case of the Delhi is quite exceptional, and with regard to itself can be taken as no criterion of the future. Portions of the line only have been open. There have been heavy expenses for repairing damages from floods, and little traffic could be expected.

dependent for coal upon England or Australia, the cost of which comes to from 60*s.* to 80*s.* a ton. The railways on the Madras coast are, however, equally deficient in a supply of native coal, and have during the past year paid even a higher rate for English coal, and yet the cost of their locomotive department is less than those in Bengal, amounting only to 13·4*d.* on the Madras, and to 13·5*d.* on the Great Southern. This may in some measure be accounted for by the lowness of wages and the lightness of their trains compared with those on the East Indian; but it is also due to the use of a considerable proportion of wood fuel, and also to good management. Fuel must always be a source of great expense on those lines which are at a distance from coal producing districts or from forests. It is therefore most important, in the interests of Indian railways, to develope the coal resources of the country, and to regulate and preserve the forests. The Government is very anxious to promote both these objects. I have referred to Australian coal; it has been tried on some of the lines of Western India, and has been well reported on; the experience of the locomotive superintendent of the Scinde company is that "it is equal "to Welsh coal in all respects, its evaporative power is nearly equal to Welsh coal, "but the consumption per mile is less than with Welsh coal." The price hitherto has been under that of English or Welsh coal. Fuel made of compressed coal dust and certain cohesive ingredients has also been used and found to answer well. Experiments have lately been made in this country by Mr. F. C. Danvers, of this office, with the view of devising means for the manufacture in India, with materials on the spot, of blocks of this kind of fuel. Fuel.

49. With regard to lubricating substances, it is now generally admitted that oil should be used for axle boxes on Indian railways. Mr. Wright, the locomotive superintendent of the Madras Railway, introduced a plan of applying oil to the axle which materially reduces the cost of haulage as well as of wear and tear. Sufficient attention has perhaps hitherto hardly been paid to the importance of adapting the power used to the results expected; waste in this respect, whether it be caused by running too many carriages and trucks, or trucks and carriages of too great a weight, or by producing unnecessary friction, adds to the haulage cost of every train, and makes a great difference in a year's returns. Lubricating substances.

50. The question as to what proportion the dead weight of rolling stock should bear to the load carried has been fully discussed by the consulting engineers to the different companies; and the result will be the adoption of such principles in the construction of trucks, waggons, and vehicles of all sorts as will secure a strength and capacity suited to the requirements of the traffic. Proportion of dead weight to carrying power.

MISCELLANEOUS.

51. Among the miscellaneous questions connected with railways which have been under discussion during the past year the following may be referred to:—The question of an uniform system of weights and measures for India has received the consideration of the Government of India, and it has been decided by your Grace that the metric system in connexion with weights is to be introduced, the kilogramme being adopted as the new unit. Weights and measures.

52. Arrangements have been made between the Government and the companies for running special postal trains when required, the cost of their haulage being paid by Government. Carriages for sorting letters are also to be used in some cases, and Government is also to pay for the haulage of these. Postage arrangements.

53. When famine threatened certain districts in the northern and western parts of India, arrangements were made for the conveyance of grain to the districts where scarcity prevailed, at $\frac{1}{3}$ of a pie per maund per mile, or less than one halfpenny per ton per mile. Famine rates for grain.

GUARANTEED INTEREST.

54. The guaranteed interest paid out of the revenues of India during the past year ending 31st December, amounted to 3,704,388*l.*, being 465,546*l.* more than the previous year. The receipts, however, from the railways which have been paid in reduction of this sum amounted to about 2,200,000*l.*, so that the actual disbursement by Government on this account was about 1,500,000*l.*

55. The whole sum which Government has advanced for interest since the commencement of the railways now amounts to 25,751,073*l.*, of which 13,658,753*l.* has been repaid by the companies, leaving a debt against them of 12,092,320*l.* (exclusive of simple interest), to be paid out of excess profits.

GUARANTEED INTEREST.—INDIAN RAILWAYS.

Statement of the Total Amount of Interest advanced to each of the under-mentioned Railway Companies to 31st December 1868.

Company.	Interest paid up to 31st December 1867.	Interest paid during 1868.			Total Amount paid up to the end of 1868.
		England.	India.	Total.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
East Indian - - -	9,911,665 1 5	1,382,584 3 11	12,848 8 10	1,395,432 12 9	11,307,097 14 2
Great Indian Peninsula	4,912,856 10 2	865,905 19 1	19,534 12 4	885,440 11 5	5,798,297 1 7
Madras - - -	2,979,010 17 9	448,135 6 11	—	448,135 6 11	3,427,146 4 8
Scinde - - -	731,352 4 5	100,449 0 0	1,084 15 0	101,533 15 0	832,885 19 5
Punjab - - -	617,525 16 0	99,195 7 8	481 1 9	99,676 9 5	717,202 5 5
Delhi - - -	275,411 15 9	155,254 4 0	565 17 6	155,820 1 6	431,231 17 3
Indus Steam Flotilla -	134,321 19 7	17,238 3 11	—	17,238 3 11	151,560 3 6
Bombay, Baroda, and Central India - -	1,648,341 12 11	360,459 0 6	1,083 4 4	361,542 4 10	2,009,883 17 9
Eastern Bengal - -	536,415 10 9	121,037 16 9	698 15 11	121,736 12 8	658,152 3 5
Great Southern of India	267,116 4 3	61,460 14 9	—	61,460 14 9	328,576 19 0
Oude and Rohilkund -	54,486 13 4	34,551 18 8	—	34,551 18 8	89,038 12 0
Total - - £	22,068,504 6 4	3,646,271 16 2	36,296 15 8	3,682,568 11 10	25,751,072 18 2

Accountant General's Department,
2d April 1868.

W. G. GOODLIFFE,
Accountant General.

Guaranteed interest.

56. The gross amount advanced by the Government every year necessarily increases with the growth of capital, but the net amount depends upon the earnings of the railways. The following statement shows the variation in these payments. It is hardly necessary to observe that the capital on which the guaranteed interest is payable is invariably larger than the capital expended on the lines earning revenue, and this will necessarily be the case so long as the railways are unfinished.

The following statement shows the amount which has been paid each year for guaranteed interest, and the amounts earned by the companies:

Year.	Amount paid for Guaranteed Interest.	Amount of Railway Earnings.	Net Amount paid out of the Revenues of India.
	£		
1849 - -	1,525		
1850 - -	31,239		
1851 - -	30,020		
1852 - -	65,044	From 1849 to 1858, £ 488,866	£ 1,788,052
1853 - -	69,072		
1854 - -	109,069		
1855 - -	213,307		
1856 - -	404,507		
1857 - -	619,443		
1858 - -	733,692		
1859 - -	1,013,138	403,057	610,081
1860 - -	1,336,752	389,413	947,339
1861 - -	1,668,340	391,162	1,277,178
1862 - -	1,982,324	625,615	1,356,709
1863 - -	2,323,605	821,548	1,502,057
1864 - -	2,569,798	1,129,851	1,439,947
1865 - -	2,796,677	2,865,574	‡
1866 - -	2,964,074	2,347,085	616,989
1867 - -	3,238,842	1,989,112	1,249,730
1868 - -	*3,704,388	†2,207,470	1,496,918
	25,874,856	£13,658,753	12,285,000
Deduct Calcutta and South-Eastern £ 163,725		Less, excess in 1865 -	- 68,897‡
Indian Tramway 1,500		- - -	- 12,216,103
	165,225		165,225
	25,709,631		12,050,878
Add Oude and Rohilkund prior to 1867 - -	41,442	- - -	- 41,442
	£25,751,073		£12,092,320

* Inclusive of Calcutta and South-eastern, 20,320*l.* Inclusive of Indian Tramway, 1,500*l.*
† Partly estimated.
‡ The amount of railway earnings this year exceeded the amount paid for guaranteed interest by 68,897*l.*

The following observations relate to the various undertakings, in the order in

EAST INDIAN RAILWAY.

East Indian Railway.

57. The constructive operations on this line are now coming to a conclusion. The chord line is the only remaining work which will open fresh means of communication. All other operations are directed to the doubling of certain sections of the line, and to giving a finishing touch to station buildings, to dwellings for the officers and servants of the company, and to works of detail. It was estimated by Mr. A. M. Rendel, the consulting engineer to the company, who went out to India in the winter of 1867–68 for the purpose, among other objects, of examining the unfinished portions of the undertaking, that a sum of 3,340,000*l.* would be required to carry out these necessary operations. Of this sum 2,860,000*l.* has been raised, so that only about half a million more will have to be provided. Expenditure on capital account will then cease, unless the increase of traffic should demand further accommodation and more rolling stock.

58. The completion of the chord line, which will be opened next year, will shorten the distance between Calcutta and all places above Luckeserai by 70 miles.

59. The proposal to extend the railway into Calcutta by a bridge over the Hooghly has been superseded by the determination of Government to construct an ordinary road bridge, which will connect the Howrah terminus of the railway with the city, and meet all the requirements both of the railway and of the community. The designs for this bridge are now being prepared by Mr. A. M. Rendel.

60. With regard to the traffic, there was a falling off in the early half of 1868, which was accounted for by the great reduction in the traffic in cotton, the low price in England checking exportation. The latter half showed signs of improvement, and the increase now is considerable. The reduction in the maintenance and working charges is a very satisfactory feature in the last returns.

61. For the two last years ending 31st December they were as follow:—

	Gross Receipts.	Expenses.	Net Receipts.
	£	£	£
1867 -	2,153,054	1,074,070	1,078,984
1868 -	2,234,980	997,033	1,237,947

GREAT INDIAN PENINSULA RAILWAY.

Great Indian Peninsula.

62. The object to which the chief energies of the company connected with this undertaking are now directed is the repair of those works on the open line which failed, and the completion of the final sections of the North-east and South-east branches, which will effect through railway communication between Bombay and Calcutta and Bombay and Madras. It is hoped that the former of these lines will be finished in the course of next year, but I fear that the latter will hardly be ready for opening until 1872.

63. The masonry bridges which have given way have been replaced by structures consisting of wrought-iron girders supported on brick, and in some instances iron foundations. It is estimated that the reconstruction of these works and the general repairs will cost about 1,300,000*l.*

64. The traffic has been influenced by the depression of trade. The expense of maintenance and working still remains very high, being 63·11 per cent. of the gross receipts, but efforts are being made to reduce it.

65. In the year 1868 the gross receipts amounted to 1,480,039*l.*, compared with 1,486,712*l.* of the previous year, the net receipts being 565,277*l.* and 658,706*l.* respectively.

MADRAS RAILWAY.

Madras.

66. Thirty-two miles have been added to the open length of this undertaking during the year. Steady progress has, upon the whole, been made with the works on the unfinished portions, and the line towards the point of junction with the Great Indian Peninsula Railway is in a state which promises completion sooner than that line will be ready to join it.

67. The branch to the foot of the Neilgherry Hills, which formed a part of the system originally included in this company's contract, is about to be put in hand.

68. In July the line was damaged and the traffic interrupted in two places by the bursting of tanks, which increased the force of the floods so much as to wash away one bridge on the Bangalore branch and another on the North-west line. In reconstructing these bridges wider openings have been made.

69. Lord Mayo, on his way from Bombay to Calcutta to assume the reins of Government, proceeded by way of Madras along this railway, and during his journey from

Beypore rode for 60 miles on the engine, expressing himself much pleased, after this personal observation, with the condition of the line.

70. The traffic continues to present a steady and satisfactory progress. Notwithstanding the depressed state of trade during the year, there has been a fair increase both in passengers and goods, and the line has been maintained and worked with the care and economy usually shewn by the officers of this company.

71. The gross receipts of the year ending December 1868 were 566,141*l.* against 470,992*l.* of the previous year, and the net receipts 331,217*l.* against 267,737*l.*

BOMBAY AND BARODA RAILWAY.

Bombay and Baroda Railway.

72. The construction works on this line are at present confined to the short extension over the Saburmuttee river at its northern extremity and to the execution of the necessary works at the Bombay terminus.

73. It has now been decided to fix the Bombay terminal station at Colaba, and no further delay will probably occur in taking the line there and in putting up the buildings.

74. The large bridge which carries the line over the Nerbudda did not escape the force of the last monsoon floods. Two spans were washed away on the 10th July. The traffic was interrupted only for a short time, a timber staging having been erected without delay for the passage of trains. This is not the first warning that has been given of the liability of the Nerbudda bridge to be damaged by the violence of the floods; and an investigation is now being made by Mr. John Hawkshaw, the eminent engineer, in conjunction with the chief resident engineer of the line, Mr. Mathew, and Captain Hancock, the Government consulting engineer, into the stability of this and similar structures, and measures will probably soon be taken for adding to their strength and durability.

75. The past year has not been a favorable one for traffic. The depressed state of trade has affected both passenger and goods traffic. That for the two last years was as follows:—

Year ending December	Gross Receipts. £	Expenses. £	Net Receipts. £
1867 - -	425,050	282,899	142,151
1868 - -	419,714	272,495	147,219

SCINDE RAILWAY.

Scinde Railway.

76. This line has been well maintained during the year, and the monsoon rains passed over without inflicting any injury upon it.

77. The traffic shows an increase over the preceding year, and the working expenses have been considerably reduced.

THE INDUS FLOTILLA

78. Indus Flotilla. has been conducted with care and regularity. The traffic received a considerable impulse from the conveyance of troops on their return from the Abyssinian Expedition; but last half-year, without this aid, the earnings would have been greater than on any previous occasion. No addition has been made to the fleet, which consists of 16 steamers, including three tugs, and 46 barges.

THE PUNJAB RAILWAY

79. Punjab Railway. has been maintained in good order, and the works on construction account have been trifling. The Ameer of Cabul travelled over a portion of this line on his way to meet the Viceroy at Umballah, on the 27th March, and expressed his admiration for this mode of locomotion, which he had never before seen.

THE DELHI RAILWAY

80. Delhi Railway. was opened for a further distance of 120 miles, connecting Meerut with Umballah, in November, by the late Viceroy, Lord Lawrence. He afterwards traversed the whole distance from Umballah to Calcutta, a length of 1,300 miles, in 44 hours. The works on the unopened portions of the line have been carried on with energy The most important of these are the bridges over the Sutlej and Beas. Another one hundred and forty miles of this line will probably be opened before the end of the year. The opening of the remaining six miles depends upon the completion of the Sutlej bridge.

81. One of the difficulties attending bridge construction in India is the shifting character of the streams; and an example of this has unfortunately occurred on the

Sutlej where this very bridge is to cross it. The river, which runs through a valley five miles wide, and has for the last 70 or 80 years flowed along the northern side, seems now disposed to change its course to the southern side. It has already so far altered its position as to make it necessary to extend the bridge, which was originally designed for a crossing of 4,000 feet, a further length of 2,200 feet, involving a cost of upwards of 60,000*l.*

82. The four undertakings which now comprise the system of the Scinde Railway are about to be amalgamated under the sanction of a special Act of Parliament. Much advantage, both in the shape of economy and simplicity of management, will be obtained by this arrangement.

EASTERN BENGAL RAILWAY.

Eastern Bengal.

83. The works on the Goalundo extension of this line have been going on steadily; but the erection of the bridge over the Goraie river has not progressed so rapidly as was expected. The bed of the river presented difficulties which required deeper foundations for some of the piers than was contemplated. The line, with the exception of this bridge, may be completed in February next, and will be opened upon arrangements being made for carrying the traffic across the river.

84. There has been a steady development of traffic both in passengers and goods; and if the present low rate of expenditure is maintained, there is every prospect of more favorable returns.

85. The Calcutta and South-eastern Railway, which was taken over by the Government in May 1868, is now worked by the Eastern Bengal agency, under an arrangement by which the Government pay for superintending and terminal charges and take the receipts of the line. No account has been received of its working since this change was made.

86. The gross receipts of the Eastern Bengal for the year 1868 were 198,811*l.* as compared with 156,917*l.* of the previous year, the net receipts being 96,210*l.* against 77,844*l.*

GREAT SOUTHERN OF INDIA RAILWAY.

Great Southern of India.

87. The whole length of line which this company undertook to construct has been at work for more than a year. Its junction with the Madras Railway at Erode took place on the 1st January 1868, and arrangements were made between the two companies for making that station available for the use of each.

88. The question of the extension of the line in a southerly direction to Tuticorin is now under consideration.

89. The traffic has been conducted economically, and has increased, but the returns are not yet very considerable. Comparing the last two years the results are as follows:—

	Receipts.	Expenses.	Net Receipts.
1867 -	£58,191 -	£27,682 -	£30,509
1868 -	73,380 -	33,601 -	39,779

OUDE AND ROHILKUND RAILWAY.

Oude and Rohilkund.

90. No addition has been made to the open portion of this line, viz., between Cawnpore and Lucknow, but progress has been made with the works on the extension from Lucknow to Byram Ghât, and it is expected that this section will be ready for traffic next year.

91. The route for the other lines of this company's system has been settled, and is being staked out. Starting from Moradabad the line will proceed south of the Ramgunga River to Chundowsee, with a branch from thence to Allyghur on the East Indian Railway, crossing the Ganges at Ram Ghât, the main line going on to Bareilly and Shahjehanpoor to Lucknow, Nawubgunge, Fyzabad, and Akberpoor, whence it will take two directions, one going to Benares, the other to Buxar. Between Benares and Lucknow, a distance of 203 miles, the average height of the embankments will be about three feet; there will be 10 bridges, four unimportant, and the rest of no real magnitude, and the cost is now estimated at about 10,000*l.* per mile.

92. The light system of permanent way put down on the Cawnpore and Lucknow line is not found to be suitable for the 5 ft. 6 in. gauge. A modification will be introduced on the rest of the line. The rails determined on weigh 60 lbs. to the yard, and cast-iron sleepers will be generally used.

93. It is not unlikely that special arrangements will be made for the execution of the branch line to the Nynee Tal ironworks, and that for this line a narrow gauge will be found suitable.

THE INDIAN TRAMWAY.

94. No addition has been made to the 18¾ miles between Arconum and Conjeveram, which is at present the extent of this undertaking. The operations of the company are, however, soon likely to be enlarged, as negotiations are in progress for continuing the line to Cuddalore, the cost of which is estimated at about 800,000*l.* The line has been maintained in good order, but the traffic during the year has, like that of other railways, suffered from the state of trade.

SUMMARY.

95. The principal information contained in the foregoing report may be briefly summed up as follows:

96. The length of line now open is 4,096 miles, of which 175 miles were completed during the past year. About 1,830 miles of the system already determined on remain to be constructed; but a new scheme for additional railway communication throughout India is about to be commenced and to be executed, for the most part, through the direct instrumentality of Government. It is expected that the great trans-peninsula line which will connect Calcutta with Bombay will be completed and open for traffic in the autumn of next year.

97. The capital which has been expended on Indian railways, exclusive of the cost of the land, amounted on the 31st March last to 78,986,655*l.*, of which 4,548,638*l.* was expended during the past year. The expenditure in this country last year was 1,935,012*l.*, in India 2,613,626*l.*

98. The number of persons who as proprietors of India Railway Stock are directly interested in the success of these undertakings has now risen to 45,055, an addition of 4,015 having been made during the year. There are debenture holders also to the number of 8,444.

99. Stores and materials to the amount of 188,858 tons, and of the value of 1,849,554*l.* have been sent out during the year, making a total of 3,718,049 tons, which, at a cost of 25,052,135*l.* have been shipped from this country to India since the commencement of railway operations there.

100. It has not been a prosperous year for traffic; trade has been almost stagnant; certain districts have been threatened with famine, and there has been a general depression in all descriptions of business. This has, of course, told upon the internal communication of the country, and the railway receipts have suffered accordingly. The falling off, however, is confined to goods traffic. The passenger traffic shews an increase both in numbers and receipts. Comparing the two last years, the amounts realised from passengers were 1,591,475*l.* and 1,376,812*l.* respectively. That from goods in 1867-68 was 3,135,481*l.*, in 1866-67 3,326,607*l.* The total net receipts in 1867-68 were 2,100,122*l.* as against 2,337,300*l.* in 1866-67.

101. The whole amount that has been advanced by Government for guaranteed interest from the beginning in 1849 now exceeds 25,700,000*l.* Of this about 13,650,000*l.* has been paid back by the companies out of the railway earnings, leaving upwards of 12,000,000*l.* to be paid out of excess profits over 5 per cent. The largest amount which, after deducting the railway receipts, has been paid in any one year was 1,500,000*l.* in 1863. The average amount paid by Government has been 707,500*l.* per annum.

102. The number of passengers last year was 15,066,530, of whom 14,401,000 were third class. In 1866–67 the total number was 13,746,354. The train miles run were 11,042,251 and 11,980,319 respectively.

103. While the steady advance which has hitherto been made in the revenue receipts has not been sustained during the past year for reasons which have been explained, and while cause has been given for disappointment at the failure of some of the works and at the delay in completing others, the general results are not unsatisfactory, and there is much to inspire hope for the future. The immense importance of these great works, as affecting the prosperity, security, and social improvement of the country is daily becoming more and more manifest, and their success as commercial undertakings is clearly shewn to be attainable by those to which care, economy, and skilful management are applied.

I have the honour to be, my Lord Duke,

Your Grace's very obedient humble servant,

JULAND DANVERS.

APPENDIX.

The following lists contain the names of the stations on the various lines, with the distances between each other :—

EAST INDIAN RAILWAY.

List of Stations on Main Line and Branches between Howrah or Calcutta and Delhi.

Distances from Howrah or Calcutta.		Stations.	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
		BENGAL DIVISION.		
Miles.	Miles.		Miles.	Miles.
—	—	Howrah	—	—
—	6	Bally	6	—
—	9	Connaghur	3	—
—	12	Serampore	3	—
—	15	Bidabatty	3	—
—	21	Chandernagore	6	—
—	24	Hoogly	3	—
—	29	Mugrah	5	—
—	38	Pundooa	9	—
—	44	Boinchee	6	—
—	51	Mymaree	7	—
—	59	Suktikur	8	—
—	67	Burdwan	8	—
		Branch from Khanoo to Barrackur.		
90	—	Mankoor	—	23
97	—	Panaghur	—	7
121	—	Ranneegunj	—	24
132	—	Assensole	—	11
138	—	Seeterampore	—	6
143	—	Barrackur	—	5
		Branch Line from Barrackur Branch.		
129	—	Singharron	—	8
—	87	Gooshkarah	20	—
—	94	Bhedeah	7	—
—	99	Bulpore	5	—
—	111	Ahmoodpore	12	—
—	119	Syntheea	8	—
—	129	Mullarpoor	10	—
—	136	Rampore	7	—
—	145	Nulhâtee	9	—
—	156	Mooraroee	11	—
—	163	Rajgowan	7	—
—	170	Pakowr	7	—
—	178	Beejapore	8	—
—	186	Bahawa	8	—
—	196	Teenpahar	10	—
—	195	Teenpahar Junction	11	—
		Branch from Teenpahar to Rajmahal.		
202	—	Rajmahal	—	7

Distances from Howrah.		Stations—*continued.*	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	211	Maharajpore	15	—
—	219	Sahibgunj	8	—
—	233	Peerpoyntee	14	—
—	247	Colgong	14	—
—	253	Ghogah	6	—
—	266	Bhagulpore	13	—
—	281	Sultangunge	15	—
—	292	Burriarpore	11	—
—	299	Jumalpore	7	—
		Branch from Junction to Monghyr.		
303	—	Monghyr	—	6
—	305	Durrarah	6	—
—	316	Kudjra	11	—
—	326	Luckeserai	10	—
—	336	Burhea	10	—
—	347	Mokameh	11	—
—	363	Barrh	16	—
—	374	Bucktearpore	11	—
—	389	Futwah	15	—
—	396	Patna	7	—
—	402	Bankipore	6	—
—	408	Dinapore	6	—
—	419	Bihta	11	—
—	433	Arrah	14	—
—	446	Beehea	13	—
—	455	Rogonathpore	9	—
—	465	Domrooan	10	—
—	475	Buxar	10	—
—	483	Bengal Division ends at River Kurrumnassa.	—	—
		NORTH-WESTERN PROVINCES DIVISION.		
—	488	Guhmer	13	—
—	498	Dildarnugger	10	—
—	507	Zumeniah	9	—
—	522	Sikuldeah	15	—
—	534	Mogul Serai Junction	12	—
		Branch from Mogul Serai to Benares.		
540	—	Benares	—	6
—	542	Ahrowra Road	8	—
—	554	Chunar	12	—
—	563	Puharee	9	—
—	573	Mirzapore	10	—
—	585	Garpoora	12	—
—	595	Nuwaee	10	—
—	605	Sirsa Road	10	—
—	618	Kirchuna	13	—
—	629	Allahabad	11	—
		Branch from Allahabad to Fort.		
631½	—	Allahabad Fort	—	2½
—	640	Monourie	11	—
—	652	Bhurwari	12	—
—	665	Serathee	13	—
—	680	Khaga	15	—
—	689	Berhampore	9	—
—	701	Futtehpore	12	—
—	711	Malwa	10	—
—	721	Mowhar	10	—
—	735	Sirsoul	14	—
—	748	Cawnpore Junction	13	—

Distances from Howrah.		Stations—*continued.*	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
		Branch from Junction to Cawnpore.		
749	—	CAWNPORE - - -	—	1
—	762	Bhowpore - - -	14	—
—	775	Roora - - -	13	—
—	787	Jheenjuk - - -	12	—
—	800	Puphoond - - -	13	—
—	810	Utchulda - - -	10	—
—	822	Burtna - - - -	12	—
—	835	Etawah - - - -	13	—
—	844	Jaswuntnugger - - -	9	—
—	856	Badan - - - -	12	—
—	869	Shekoabad - - -	13	—
—	881	Ferozrabad - - -	12	—
—	892	TOONDLA JUNCTION - -	11	—
		Branch from Toondla Junction to Agra.		
905	—	AGRA - - - -	—	13
—	901	Burhun - - -	9	—
—	909	Jaleysur Road - - -	8	—
—	921	Hattrass Road - - -	12	—
—	931	Palee - - - -	10	—
—	940	ALLYGHUR - - -	9	—
—	954	Somna - - -	14	—
—	967	Khoorgah - - -	13	—
—	976	Chola - - - -	9	—
—	985	Secundrabad - - -	9	—
—	995	Dadree - - - -	10	—
—	1,006	Ghazeeoodemnugger - -	11	—
—	1,018	DELHI - - - -	12	—

JUBBULPORE LINE.

STATIONS and DISTANCES.

Distances from Allahabad.		Stations.	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	—	Allahabad - - -	—	—
—	5	Nynee - - - -	5	—
—	15	Jusra - - -	10	—
—	28	Seorajpore - - -	13	—
—	39	Burgurh - - - -	11	—
—	55	Oonchadeek - - -	16	—
—	62	Manickpore - - -	7	—
—	72	Markoondee - - -	10	—
—	86	Mugjowan - - -	14	—
—	99	Jetwar - - - -	13	—
—	112	SUTNA - - - -	13	—
—	124	Urcharah - - -	12	—
—	132	Myhere - - - -	8	—
—	149	Undarrah - - -	17	—
—	161	Jokhye - - - -	12	—
—	172	Kutnee - - -	11	—
—	189	Sleemanabad Road - -	17	—
—	204	Sehora Road - - -	15	—
—	219	Deeoree - - - -	15	—
—	228	JUBBULPORE - - -	9	—

CHORD LINE.

(Proposed Stations.)

Distances from Howrah.		Stations.	Distances between Stations.	
Branches.	Chord Line.		Chord Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	138	Seetarampore	—	—
—	147	Lahurtollah	9	—
—	156	Jamtarrah	9	—
—	168	Telkearee	12	—
—	183	Muddupore	15	—
		Branch to Kurhurballee.		
190	—	Jugdishpore	—	7
200	—	Mahishmon	—	10
206	—	Gerhidee	—	6
—	200	Jesseedee	17	—
—	216	Semintollah	16	—
—	228	Newadee	12	—
—	234	Ghidhour	6	—
—	244	Mulleyporé	10	—
—	253	Munnunpore	9	—
—	260	Luckeserai	7	—

GREAT INDIAN PENINSULA RAILWAY.

STATIONS AND DISTANCES UPON THE OPENED LINES.

Distances from Bombay.		Stations.	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	—	Bombay (Boree Bunder)	—	—
—	2¼	Byculla	2¼	—
—	4	Chinchpoogly	1¾	—
—	5	Parel	1	—
—	5¾	Dadur	¾	—
8	—	Mahim	—	1½
—	9¼	Coorla	3½	—
—	17	Bhandoop	7¾	—
—	20½	Tanna	3½	—
—	26	Deewa	5½	—
—	33¼	CALLIAN JUNCTION	7¼	—
		(North-east Line.)		
—	40	Titwalla	6¾	—
—	49¼	Wassind	9¼	—
—	53¼	Shapoor	4	—
—	59	Atgaum	5¾	—
—	66¾	Khurdee	7¾	—
—	75	Kussara	8¼	—
—	84½	Egutpoora	9½	—
—	90¼	Ghotee	5¾	—
—	100	Nandoor	9¾	—
—	116	Deololee for Nassick	16	—
—	126	Kheirwadee	10	—
—	135½	Niphar	9½	—
—	146	Lasulgaum	10½	—
—	161½	Munmar	15½	—
—	177	Nandgaum	15½	—
—	190¾	Naidongree	13¾	—
—	203¾	Chalisgaum	13	—
—	215½	Kujgaum	11¾	—
—	230¼	Pachora	14¾	—

Distances from Bombay.		Stations—*continued.*	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	240	Myjee	9¾	—
—	247¼	Mussawud	7¼	—
—	260½	Julgaum	13	—
—	267¾	Nusseerabad	7½	—
—	275¼	BHOSAWUL	7½	—
—	291	Nimbora	15¾	—
—	309¼	Boorhaunpoor	18¼	—
—	321	Chandnee	11¾	—
—	337½	Dongergaum	16½	—
—	352½	Khundwa	15	—
—	360½	Jowrah	8	—
—	373¾	Beerh	13¼	—
283¼	—	Warrengaum	—	8
294¼	—	Nargaum	—	11
306½	—	Mulkapoor	—	12¼
323½	—	Neemgaum and Nandoora	—	17
339¼	—	Sheagaum	—	15¾
362½	—	Akola	—	23¼
385¾	—	Moortizapoor	—	23¼
411¼	—	Budnaira	—	25½
429½	—	Chandoor	—	18¼
452¼	—	Poolgaum	—	22¾
470¾	—	Wurdah	—	18½
490½	—	Sindee	—	19¾
502½	—	Boree	—	12
519½	—	NAGPOOR	—	17
		(South-east Line.)		
—	33¼	Callian	—	—
—	41¾	Budlapoor	8½	—
—	53½	Narel	11¾	—
—	62¼	Kurjut	8¾	—
71		Campoolee	—	8½
—	75¼	Reversing Station	13	—
—	77¼	Khandalla	2	—
—	79½	Lanowlee	2	—
—	89¼	Kurkulla	10	—
—	98¼	Tulligaum	9	—
—	108½	Chinchwud	10¼	—
—	115¼	Kirkee	6¾	—
—	119¼	Poona	4	—
—	136¾	Ooroolee	17½	—
—	152¾	Kheirgaum	16	—
—	160¼	Patus	7½	—
—	167	Dhond	6¾	—
—	183½	Decksal and Bheegwan	16½	—
—	195	Poomulwarree	11½	—
—	212¾	Jehwoor	17¾	—
—	222¾	Keim	10	—
—	234	Barsee Road	11¾	—
—	243¾	Marheh	9¾	—
—	262¼	Mohol	18½	—
—	282¾	SHOLAPOOR	20½	—

MADRAS RAILWAY.

STATIONS and DISTANCES upon OPENED LINES.

Distances from Madras.		Stations.	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
		SOUTH-WEST LINE.		
Miles.	Miles.		Miles.	Miles.
—	—	Madras	—	—
—	3½	Perambore	3½	—
—	13	Avady	9½	—
—	17¾	Tinnanore	4¾	—
—	25¼	Trivellore	8	—
—	29½	Cudumbathoor	3¾	—

Distances from Madras.		Stations—*continued.*	Distances between Stations.	
Branches.	Main Line.		Main Line.	Branches.
Miles.	Miles.		Miles.	Miles.
—	36	Chinnamapett	6½	—
—	42½	Arconum Junction	6½	—
—	55¾	Sholinghur	13¼	—
—	65	Arcot	9¼	—
—	73	Theruvellum	8	—
—	80½	Vellore	7½	—
—	88¼	Veerinjeepoorum	7¾	—
—	95¾	Gooriattum	7½	—
—	105½	Mailputty	9¾	—
—	112¾	Amboor	7¼	—
—	122¾	Vaniembady	10	—
—	132	Jollarpett Junction	9¼	—
154	—	Coopum	—	22
175½	—	Colar Road	—	21½
192¼	—	Malloor	—	16¾
204	—	Cadjoody	—	11¾
216½	—	Bangalore	—	12½
—	136¾	Tripatore	4¾	—
—	151¼	Samulputty	14½	—
—	166	Morapoor	14¾	—
—	180	Mullapooram	14	—
—	192¼	Shervaroy Hills	12¼	—
—	206¾	Salem	14½	—
—	219¾	McDonald's Choultry	13	—
—	230½	Sunkery Droog	10¾	—
—	243	Erode, junction with G. S. of I. Railway.	12½	—
—	252¼	Perauduray	9¼	—
—	266½	Wutkallee	14¼	—
—	275	Avenastry Road	8½	—
—	286	Somanoor	11	—
—	301¾	Cimnbatore	15¾	—
—	308	Muddikurry	6¼	—
—	316½	Walliar	8½	—
—	323½	Conjecode	7	—
—	332	Palghaut	8½	—
—	337¾	Purley	5¾	—
—	347	Luckady	9¼	—
—	351½	Wootapollium	4½	—
—	359½	Shoranoor	8	—
—	366¾	Puttamby	7¼	—
—	378¼	Cootipooram	11½	—
—	387½	Tiroor	9¼	—
—	392½	Tanoor	5	—
—	397½	Perpengady	5	—
—	406¼	Beypoor	8¾	—
		NORTH-WEST LINE.		
—	—	Arconum Junction	—	—
—	50½	Tirutany	8	—
—	59¾	Naggery	9¼	—
—	69¼	Puttoor	9½	—
—	78	Poody	8¾	—
—	83¾	Tiruputty	5¾	—
—	97¾	Ballyputty	14	—
—	109	Coodoor	11¼	—
—	121¾	Reddipully	12¾	—
—	129¾	Rajampett	8	—
—	136¾	Nundalore	7	—
—	147	Woutimettah	10¼	—
—	162½	Cuddapah	15½	—
—	176	Camalapoor	13½	—
—	185¾	Yerragoontha	9¾	—
—	195¾	Moodanoor	10	—
—	210¼	Kondipuram	14½	—
—	227¼	Tadputri	17	—

BOMBAY and BARODA RAILWAY.

STATIONS AND DISTANCES.

No.	Distance in Miles from Bombay Churney Road.	Stations.	No.	Distance in Miles from Bombay Churney Road.	Stations
1	—	Carnac Bunder.	25	134¼	Beleemora.
2	—	Churney Road.	26	137	Umulsar.
3	1¼	Bellasis Road.	27	146	Nowsaree.
4	1¼	Grant Road.	28	155½	Sucheen.
5	3¾	Parell.	29	164½	Surat.
6	4¾	Dadur Junction.	30	167	Amrolee.
7	5¼	Dadur.	31	173¼	Sion.
8	7	Mahim.	32	180¼	Keem.
9	8	Bandora.	33	189¼	Panolee.
10	13	Andaree.	34	195¾	Unclesur.
11	15½	Pahadee.	35	201	Broach.
12	20	Dysur.	36	208½	Chumargaum.
13	31	Bassein Road.	37	217¼	Palej.
14	36¼	Veraur.	38	226½	Meagaum.
15	55¼	Palghur.	39	233¾	Etola.
16	62¼	Boisur.	40	245¾	Baroda.
17	75¾	Dhanoo Road.	41	257½	Wassud.
18	82¾	Golwood.	42	267	Annund.
19	91¾	Sunjan.	43	279¼	Neriad.
20	98¾	Bheelar.	44	289½	Memoodabad.
21	105¾	Damaun Road.	45	296¾	Berajree.
22	115½	Pardee.	46	307¼	Ahmedabad.
23	122	Bulsar.	47	—	G. I. P. Stations.
24	127	Doongree.			

SCINDE RAILWAY.

STATIONS AND DISTANCES.

Stations.		Number of Miles.
From	To	
Keamaree - - - - -	Kurrachee - - - - -	3¾
KURRACHEE (McLeod Road Station).	Frere Street Station - - -	2¼
	Mulleer - - - - -	12¼
	Dorbajee - - - -	34
	JOONGSHAIE - - - -	53
	Jeempeer - - - -	72
	Mayting - - - -	85½
	Bolari - - - - -	97
	KOTREE - - - - -	105¼
Total length of line, including Keamaree Branch, 100 miles.		

PUNJAUB RAILWAY.

Stations and Distances.

Stations		Number of Miles.
From	To	
Umritsur	Khassa	8
	Attaree	16
	Jelloo	22
	Meean Meer (L. & U.)	29
	Lahore	32
Lahore	Meean Meer (L. & M.)	36
	Khana	45
	Raiwind	58
	Chunga Munga	76
	Wanradharam	92
	Okarah	112
	Montgomery	135
	Hurruppa	148
	Cheechawutnee	161
	Chunnoo	182
	Khanawalla	209
	Yatteepoor	227
	Mooltan	240
Mooltan	Raj Ghat River Station	246

EASTERN BENGAL.

Stations and Distances.

Distance from Calcutta.	Intermediate Distance.	Stations.	Distance from Calcutta.	Intermediate Distance.	Stations.
Miles.	Miles.		Miles.	Miles.	
—	—	Calcutta.	51	$5\frac{3}{4}$	Aurrunghatta.
$4\frac{1}{4}$	$4\frac{1}{4}$	Dum-Dum.	$57\frac{1}{2}$	$6\frac{1}{2}$	Buggoolah, W.G.
7	$2\frac{3}{4}$	Bailgurriah.	65	$7\frac{1}{2}$	Kissengunge.
$9\frac{3}{4}$	$2\frac{3}{4}$	Sodepore.	69	4	Muttearee.
14	$4\frac{1}{4}$	Barrackpore, W.	$74\frac{1}{2}$	$5\frac{1}{2}$	Ramnuggur.
$16\frac{3}{4}$	$2\frac{3}{4}$	Echapore.	$77\frac{3}{4}$	$3\frac{1}{4}$	Joyrampore.
$18\frac{1}{2}$	$1\frac{3}{4}$	Samnuggur.	$83\frac{1}{2}$	$5\frac{3}{4}$	Chooadangah, W.G.
$23\frac{1}{2}$	5	Nyehauttee.	89	$5\frac{1}{2}$	Moonsheegunge.
28	$4\frac{1}{2}$	Kanchraparah, W.G.	$93\frac{1}{4}$	$4\frac{1}{4}$	Allumdangah.
33	5	Mudunpore.	$98\frac{1}{2}$	$5\frac{1}{4}$	Halsha.
$38\frac{1}{4}$	$5\frac{1}{4}$	Chogdah.	$102\frac{3}{4}$	$4\frac{1}{2}$	Purodah.
$45\frac{1}{4}$	7	Ranaghat.	112	$9\frac{1}{4}$	Kooshtea.

GREAT SOUTHERN OF INDIA RAILWAY.

STATIONS AND DISTANCES UPON OPENED LINE.

Distance from Negapatam.	Stations.	Distances between Stations.
Miles.		Miles.
—	Negapatam	3
3	Sickle	4
7	Keevalore	7
14	Trivalore	4
18	Kulikery	7
25	Kordachary	5
30	Needamungalum	6
39	Ammapettah	3
36	Saliamungalum	10
49	Panjore	10
59	Boodalore	15
74	Peroovembore	8
82	Trichinopoly	9
91	Ellamanore	12
103	Kulitalay	6
109	Lalapettah	7
116	Cuttalay	11
127	Caroor	9
136	Poogalore	8
144	Cudumudy	12
156	Passoor	12
168	Erode	—

OUDE AND ROHILKUND RAILWAY.

STATIONS and DISTANCES upon opened LINE between Lucknow and Cawnpore (42 Miles).

Miles from Lucknow.	Stations.	Distances between Stations.
—	Lucknow	—
$13\frac{3}{4}$	Harownee	$13\frac{3}{4}$
$23\frac{3}{4}$	Ajgaen	10
$33\frac{1}{4}$	Oonao	$9\frac{1}{2}$
42	Cawnpore	$8\frac{3}{4}$

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For Her Majesty's Stationery Office.

THE LORD CHANCELLOR'S AUGMENTATION ACT.

SUMMARY of RETURN of Proceedings under the Act since the same came into Operation (1st November 1863), up to and inclusive of the 24th of February 1869.

	No. First Schedule.	No. 23rd Section.
Advowsons sold - - - -	87	11

PURCHASE-MONEY AND APPLICATION.

	£.
Total amount of purchase-money of Advowsons sold - - - -	185,509
Amount paid into the Bank of England - - - - - - - -	180,059
Amount secured by rent-charges, or for which land, &c. accepted - -	5,450

Edward Thesiger,
Secretary of Presentations.

AUGMENTATION OF BENEFICES ACT. - - - - - - -

RETURN of all SALES that have been effected under the Powers of the Act, and of the Terms on which Application thereof, from the 2nd day of

SALES UNDER FIRST SCHEDULE. - - - - - - - -

ADVOWSON.	COUNTY.	DIOCESE.	Gross Income, as per Return.	Gross Outgoings, as per Return.	Age of Incumbent.	Allowance where no House.	Price.	Purchaser.
			£. s. d.	£. s. d.		£.	£.	
Roch or Rupa - -	Pembroke -	St. David's -	143 17 –	23 18 3	29	25	450	The Rev. R. Wright -
St. James, Colchester -	Essex - -	Rochester -	169 2 –	* 39 11 –	46	–	1,300	The Right Hon. Lord Braybrooke.
Elmstone Hardwicke -	Gloucester -	Gloucester and Bristol.	236 5 –	45 12 2	62	–	2,300	The Right Hon. the Earl of Ellenborough.
Stowe - - - -	Salop - -	Hereford -	228 13 7	34 8 6	50	–	1,500	The Rev. John Rogers -
Humber - . -	Hereford -	Hereford -	232 13 –	* 30 6 4	53	–	2,000	J. H. Arkwright, Esq. -

SALES under the 23rd and 24th Sections - - - - - - -

			£. s. d.	£. s. d.			£.	
Courteenhall - -	Northampton	Peterborough	425 12 –	46 14 8	60	–	3,800	The Trustees of the Courteenhall Estates.

APPLICATION under the 26th Section.

Unconditional Grants made by the Lord Chancellor to the following Livings, on account of the Smallness of Stipend of the several Incumbents, and Poverty of their Parishes.	£.	Grants made towards Livings where 200 *l.* and 100 *l.* respectively raised by the Incumbents.	£.	Grants made to the following Livings, proposed in last Return (as to part) towards building Parsonage Houses.	£.
Exeter, St. Laurence - - - -	500	Llanglydwen - - - - -	400	Haselor - - - - - -	400
Norwich, St. Laurence - - - -	500	Winchester, St. Laurence - - -	400	Hunningham - - - - -	400
Norwich, St. Peter - - - -	500	Southampton, St. Laurence - - -	400	Hykeham, South - - - - -	400
Ottery St. Mary - - - - -	500			Longney - - - - - -	200
Rhosmarket - - - - - -	500			Ludchurch - - - - - -	400
Stokenchurch - - - - - -	500			Prendergast - - - - - -	400
Totness - - - - - - -	500			Weston - - - - - -	400
				Yarnscombe - - - - -	400
				Patcham - - - - - -	400
				Garsdale (Parsonage or Stipend) - -	400
	£. 3,500		£. 1,200		£. 3,800
Offered to the Ecclesiastical Commissioners for further augmentation.		Offered to the Ecclesiastical Commissioners for further augmentation.			

* In calculating the price of these Advowsons, some items, improperly included in the outgoings, such as repairs and voluntary payments, &c., are disregarded.

- - - - - - - AUGMENTATION OF BENEFICES ACT.

such Sales have been effected; and of all MONIES received under the Authority of the Act, and of the December 1867 to the 24th day of February 1869.

- - - - - - - - - SALES UNDER FIRST SCHEDULE.

Contract Complete.	Purchase-Money, and how Paid or Secured, under 5th Section.			Grant Executed.	Investment or Application under 6th, 7th, and 8th Sections.	OBSERVATIONS.
	Paid into Bank.	Secured.	Freehold Annuity.			
3 Oct. 1867	- - -	- -	- - -	- - -	- - - -	Contract for sale voided by vacancy in living before purchase-money paid.
6 Dec. –	23 Dec. 1867	- -	- - -	13 Jan. 1868	Ecclesiastical Commissioners.	
22 Jan. 1868	28 Jan. 1868	- -	- - -	31 Jan. –	- ditto - - ditto.	
23 Mar. –	4 June –	- -	- - -	10 June –	- ditto - - ditto.	
11 May –	22 May –	- -	- - -	1 June –	- ditto - - ditto.	

- - - - - - - SALES under the 23rd and 24th Sections.

19th March 1868, the Ecclesiastical Commissioners certified that 3,800 *l.* was an adequate price for the Advowson.	21 March, Contract complete.	21 April, Purchase-money paid into Bank.	25 November, Grant executed.

SUMMARY.

	£.		£.
Amount received from previous Sales under the 23rd and 24th Sections - - - - -	34,750	Appropriation under previous Schemes for Augmentation, and Grants for Parsonage Houses -	26,100
Ditto - - from Sale in this Return -	3,800	Amount granted for Augmentation, as above: £. 3,500 1,200	4,700
		Ditto for Parsonage Houses, as above - -	3,800
		Balance unappropriated - - - - -	3,950
£.	38,550	£.	38,550

Edward Thesiger,
Secretary of Presentations.

AUGMENTATION OF BENEFICES.

RETURN of Proceedings under the Lord Chancellor's Augmentation Act, from 2nd December 1867 to 24th February 1869.

(*Presented pursuant to Act* 26 *&* 27 *Vict. c.* 120, *s.* 32.)

Ordered, by The House of Commons, *to be Printed,*
26 *February* 1869.

48.

Under 1 *oz.*

ECCLESIASTICAL COMMISSION.

RETURN to an Order of The Honourable The House of Commons, dated 14 April 1869 :—*for,*

COPY "of MINUTE or REPORT of the ESTATES COMMITTEE, dated the 25th day of February 1869, adopted at a General Meeting of the ECCLESIASTICAL COMMISSIONERS, on the 4th day of March 1869."

COPY of the REPORT of the ESTATES COMMITTEE of the ECCLESIASTICAL COMMISSIONERS for *England*, dated the 25th February 1869, and adopted at a General Meeting of the ECCLESIASTICAL COMMISSIONERS on the 4th March 1869.

REPORT.

THE Committee have had before them certain communications from the Rev. Hugh Stamer and the Rev. R. Nicholson, the respective incumbents of the livings of Saint James and Saint Paul's, Burnley, in the county of Lancaster, from which it appears that the patron of the rectory of Burnley declines to entertain the proposition which has been made to him on behalf of the Commissioners, and the purport of which, the Board will remember, is, that in the event of the income of each of such daughter churches being raised by the Board to 300*l.* per annum until the next avoidance of the rectory, arrangements should be made by which the patronage of the churches should be placed in the patron of the rectory, and the augmentations be made a charge upon the income of the latter, as from the date of their ceasing to be payable by the Commissioners. 18918/68. 19053/68. 22622/68. 2546/69.

The incumbents of the two daughter churches contend that the Commissioners are bound, by their general augmentation rules, to augment their incomes up to 300*l.* per annum, seeing that each of them has a population in excess of 4,000; and they urge that the circumstances of the mother church ought not to be taken into consideration in the matter, or at any rate ought not to act as a bar to such augmentation.

A case of a similar kind has likewise come under the consideration of the Committee, in the benefice of Edenfield, a district which was taken out of the parish of Bury, in the county of Lancaster, and has a population of 4,000 and upwards.

Here also the Board have refused to grant the augmentation, unless provision be made for transferring the liability to the richly endowed rectory of Bury, upon the next avoidance of the same, and the rector of Bury demurs to such a condition, for reasons similar to those advanced in the case of Burnley, and feels assured of the concurrence of his patron in the same view.

The principle which has guided the Committee in making the recommendations which they have submitted to the Board in regard to these cases is, that the limited funds which are at the disposal of the Commissioners for relieving spiritual destitution cannot, with a due regard to the numerous claims upon them throughout the country generally, be properly applied in permanently augmenting districts where there already exist large local revenues available

for the spiritual supervision of the parish out of which such districts have been formed.

Of this principle the Legislature have repeatedly shown their approval by enactments in reference to benefices of large revenues, and instances of this are furnished in the statutes recently passed under the titles of "The Stanhope and Wolsingham Rectories Act, 1858," "The Rochdale Vicarage Act, 1866," and "The Bishopwearmouth Rectory Act, 1867"; and an arrangement similar to that which the Commissioners have contended for, in the cases now under consideration, has been successfully carried out in regard to the benefice of Crakehall, a new district formed out of the ancient parish of Bedale, in the county of York. In that case, the patrons of the mother church showed no reluctance in assenting to the proposals of the Commissioners for effecting an augmentation of Crakehall out of the rectorial revenues on the next avoidance of the rectory, notwithstanding that the parish had a local, and therefore a Parliamentary, claim upon the Commissioners in respect of property therein vested in them; and the consequence has been that Crakehall has been temporarily raised by the Board to 300 *l.* per annum, and that upon the next avoidance of the mother church, it will come into possession of a portion of the rectorial revenues exceeding the amount of the *ad interim* grant of the Commissioners, whose funds will thereafter be relieved from the augmentation. Legislation, with the object of effecting a like arrangement, is moreover about to be set on foot with regard to the rectory of St. Mary, Newington, in the county of Surrey, the grants of the Commissioners to the daughter districts in that populous parish having been made to cease and determine upon the avoidance of the rectory, which has just taken place. It is to be observed that the Commissioners and the Legislature have always evinced a readiness to concur in securing to patrons consenting to appropriate, in the manner proposed, portions of the revenues of mother churches, the patronage of and rights of nomination to the daughter churches so augmented.

The committee think it desirable to draw the attention of the Board to the foregoing facts and considerations, as bearing upon the cases now before them.

By Order of the Board,

James J. Chalk, Secretary.

10 Whitehall-place, 22 April 1869.

ECCLESIASTICAL COMMISSION.

COPY of Report of the Estates Committee of the Ecclesiastical Commissioners for *England*, dated 25 February 1869, and adopted at a General Meeting of the Ecclesiastical Commissioners on 4 March 1869.

(*Mr. Richard Shaw.*)

Ordered, by The House of Commons, *to be Printed*,
3 *May* 1869.

182.

Under 1 *oz.*

ECCLESIASTICAL FEES.

RETURN to an Address of the Honourable The House of Commons, dated 5 April 1869;—*for*,

"COPY of the TABLE of ECCLESIASTICAL FEES settled in pursuance of the Provisions of the Act 30 & 31 Vict. c. 135, and submitted to Her Majesty's Privy Council for their Approval."

TABLE of FEES and PAYMENTS to be made to Chancellors or Vicars General, Registrars, Secretaries, and other Officers, on the Consecration of Churches, Chapels, Cemeteries, and Burial-grounds, on and incidental to the Grant of Faculties, and on the Ordination of Deacons and Priests, and to the Chancellors or Vicars General, Registrars, and other Officers of Archbishops and Bishops, and to Archdeacons and their Officials, and other Officers, on the Visitation of such Archbishops and Bishops and Archdeacons respectively, settled pursuant to the Provisions of the Act 30 & 31 Vict. c. 135.

		Vicar General, Chancellor, Archdeacon, or Official.	Registrar or other Officer by usage performing the Duty.	Secretary of Archbishop or Bishop.	Apparitor.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
1	Consecration of a Church and Burial Ground - - - - - -	3 3 –	7 7 –	1 1 –	1 1 –
2	Consecration of a Cemetery or Burial Ground - - -	2 2 –	6 6 –	1 1 –	1 1 –
3	Episcopal or Archidiaconal Visitation - - - - - -	– 2 –	– 12 6	- -	– 3 6
4	Faculty for Alterations in Churches or Churchyards - - -	1 1 –	3 13 6	- -	– 10 6
5	Ordination - - - - - -	- -	– 5 –	2 2 –	—

1 and 2. The Chancellor's fee includes the approval of plans, the perusal of the petition and other papers, the settling the sentence, and the approval of the Draft Act. The Registrar's fee includes the perusal of the deeds of conveyance, the drawing and engrossing of the petition, and the Sentence and the Notarial Act, the necessary attendance at the consecration, and the registering the deeds and the Act in the Register book of the diocese. The Secretary's fee includes the inspection of plans and correspondence prior to the papers being sent to the Registry. The Apparitor's fee includes all necessary citations and attendance on the Bishop at the consecration.

3. The Chancellor's fee includes the attendance of the Chancellor or his Surrogate, the examination of the presentments of the outgoing churchwardens and the admission of new churchwardens to office. The Registrar's fee includes the drawing and issuing of the inhibition and of the mandate for the citation of the clergy, the preparation of the visitation books and of the articles of inquiry, and the presentment papers, the attendance at the visitation and attesting the presentments and declarations of the churchwardens, the registering the papers exhibited by the clergy, the tabulating in the Registry the copies of the Register Books of Baptisms and Burials and other papers required to be annually transmitted. The Apparitor's fee includes the preparation and delivery of the citations to the clergy and churchwardens and the attendants at the visitation.

4. The Chancellor's fee includes the perusal of the petition, the Order for the notice or citation, as the case may be, the perusal of the certificate and other papers, and making the Decree. The Registrar's fee includes the perusal of the minutes of vestry and the petition, the drawing of the notice or citation, and attending the Chancellor for his Order, the preparation of the certificate and attendance on the Chancellor for his Decree, and the drawing and signing the faculty. The Apparitor's fee includes the service of the notice or citation, but is exclusive of one shilling a mile for travelling expenses, if the citation is to be personally served in the country.

5. The Registrar's fee is for registering the names and titles of the candidates in the register books of the diocese. The Secretary's fee is for correspondence with the candidates, the drawing of papers and instructions prior to examination, attendance at the ordination, preparing the Letters of Orders, and entering the names and titles of the candidates in the Bishop's Act Book.

A. C. Cantuar.
Hatherley, C.
W. Ebor.

ECCLESIASTICAL FEES.

COPY of the TABLE of ECCLESIASTICAL FEES settled in pursuance of the Provisions of the Act 30 & 31 Vict. c. 135, and submitted to Her Majesty's Privy Council for their Approval.

(*Mr. Monk.*)

Ordered, by The House of Commons, *to be Printed,*
15 *April* 1869.

EDINBURGH CHURCHES.

RETURN to an Address of the Honourable The House of Commons, dated 23 April 1869;—*for*,

"RETURNS from the ECCLESIASTICAL COMMISSIONERS in *Edinburgh* (in continuation of Parliamentary Paper, No. 95, of Session 1867–8), showing, for the Year from Martinmas 1867 to Martinmas 1868, the Number of SEATS Let, Unlet, and Free, and Totals of these:"

"Of the Proceeds of the SEAT RENTS of each CHURCH, and the Value of the UNLET SITTINGS; the Returns to be divided into the Churches in the New Town and the Churches in the Old Town, and all the Columns to be added up, showing the Totals in each Case:"

"And STATE of ACCOUNTS for the Year 1867–8, prepared in Terms of the Act, dated the 24th day of July 1868."

— I. —

STATEMENT showing the Number of SEATS Let, Unlet, and Free in each CHURCH under the Charge of the ECCLESIASTICAL COMMISSIONERS for the Year 1867–8.

I.—OLD TOWN.

	Let.	Unlet.	Free.	TOTAL.
1. Tolbooth	203	405	40	648
2. New North, or West St. Giles	581	621	170	1,372
3. High Church	143½	856½	111	1,111
4. Tron	666	nil	73	739
5. Trinity College	635	nil	65	700
6. Lady Yester's	1,016	nil	246	1,262
7. Old Greyfriars	464	86	102	652
8. New Greyfriars	752	332	136	1,220
9. St. John's	198	158	650	1,006
	4,658½	2,458½	1,593	8,710

II.—NEW TOWN.

10. St. Andrew's	861	nil	96	957
11. St. George's	782	320	122	1,224
12. St. Mary's	503	887	170	1,560
13. St. Stephen's	1,206	232	163	1,601
14. Greenside	942	14	106	1,062
	4,294	1,453	657	6,404

ABSTRACT.

I. Old Town	4,658½	2,458½	1,593	8,710
II. New Town	4,294	1,453	657	6,404
	8,952½	3,911½	2,250	15,114

— II. —

STATE showing the Proceds of the SEAT RENTS of each CHURCH under the Charge of the ECCLESIASTICAL COMMISSIONERS for the Year 1867–8.

I.—OLD TOWN.	£.	s.	d.	II.—NEW TOWN.	£.	s.	d.
1. Tolbooth Church	24	10	–	10. St. Andrew's	634	10	6
2. New North or West St. Giles	178	17	–				
3. High Church	49	4	6	11. St. George's	476	4	7
4. Tron	253	3	3				
5. Trinity College	198	15	9	12. St. Mary's	238	9	3
6. Lady Yester's	397	19	–				
7. Old Greyfriars	277	–	–	13. St. Stephen's	765	13	–
8. New Greyfriars	197	6	6				
9. St. John's	57	17	6	14. Greenside	430	10	–
£.	1,634	13	6	£.	2,545	7	4

ABSTRACT.

	£.	s.	d.
1. Old Town	1,634	13	6
2. New Town	2,545	7	4
£.	4,180	–	10

— III. —

STATE showing the Value of UNLET SITTINGS of each CHURCH under the Charge of the ECCLESIASTICAL COMMISSIONERS for the Year 1867-8.

I.—OLD TOWN.	£.	s.	d.	II.—NEW TOWN.	£.	s.	d
1. Tolbooth	195	14	9	10. St. Andrew's		—	
2. New North or West St. Giles	186	16	–				
3. High Church	319	6	2	11. St. George's	443	13	–
4. Tron		—					
5. Trinity College		—		12. St. Mary's	718	16	6
6. Lady Yester's		—					
7. Old Greyfriars	41	11	6	13. St. Stephen's	320	5	3
8. New Greyfriars	124	–	2				
9. St. John's	117	17	1	14. Greenside	1	10	–
£.	985	5	8	£.	1,484	4	9

ABSTRACT.

	£.	s.	d.
1. Old Town	985	5	8
2. New Town	1,484	4	9
£.	2,469	10	5

— IV. —

STATE of Accounts for the Year 1867–8.

Charge.	£.	s.	d.
To Balance on last year's account	127	11	3
„ Cash from Exchequer	2,000	–	–
„ Cash from City of Edinburgh	4,613	17	6
„ Seat rents and interests	4,193	11	10
„ Rents, feu duties, interests, and miscellaneous sums	119	18	10
£.	11,054	19	5

Discharge.			
By paid ministers' stipends, and sums paid to Drs. Hunter and Smith's representatives under Apportionment Act.	7,264	6	5
„ Church officers, and other expenditure by Kirk Sessions	1,015	3	10
„ Repairs and maintenance of churches, superintendence, furnishings, &c.	717	–	11
„ Feu duties, taxes, insurance, coals, water, gas, &c.	389	10	8
„ General and incidental expenses	178	18	11
„ Balance of funds in hands of Commissioners subject to claims of Drs. McLetchie's and Lee's representatives, and ministers' widows' fund, of about 880 *l.*	1,489	18	8
£.	11,054	19	5

Edinburgh, 24 July 1868. (signed) *James Macknight*, Secretary.

Certified by me,

(signed) *Edmund Baxter*,
Auditor of the Court of Session.

Note.—Since the above State of Accounts was advertised, the following sums have been paid out of the above balance of	£.	s.	d.	£.	s.	d.
	–		–	1,489	18	8
Dr. McLetchie's trustees	275	18	3			
Interest on ditto	3	4	9			
Ministers' widows' fund	—					
Vacant stipend	275	–	–			
Dr. Lee's representatives	300	–	–			
Interest	2	18	8			
				857	1	8
Balance £.				632	17	–

As to Value of Seat Rents.

In most of the churches, an abatement, on account of the value of each sitting, is given to every applicant residing or having a place of business within the ancient and extended royalty. This abatement averages about one-fourth, and when seats are not let, it is impossible to say whether they would have been taken by parties entitled or not to the abatement.

In these circumstances, it has been assumed that one-half would be entitled to the abatement, and in this way a deduction of one-eighth has been made from the gross value of the unlet sittings.

It must further be observed that, in point of fact, many pews are allocated to more sitters than they can conveniently hold, so that the apparent number of unlet sittings is greater than the actual; but no deduction has been made on that score.

James Macknight,
Secretary, Edinburgh Ecclesiastical Commissioners.

Edinburgh, 12 London Street,
5 June 1869.

EDINBURGH CHURCHES.

RETURNS from the ECCLESIASTICAL COMMISSIONERS in *Edinburgh* (in continuation of Parliamentary Paper, No. 95, of Session 1867–8), showing, for the Year from Martinmas 1867 to Martinmas 1868, the Number of SEATS Let, Unlet, and Free, and Totals of these; of the Proceeds of the SEAT RENTS of each CHURCH, and the Value of the UNLET SITTINGS; and, STATE of ACCOUNTS for the Year 1867–8, prepared in terms of the Act, dated 24 July 1868.

(*Mr. M'Laren.*)

Ordered, by The House of Commons, *to be Printed,*
15 *June* 1869.

Under 1 *oz.*

QUEEN ANNE'S BOUNTY.

AN ACCOUNT of all Receipts and Disbursements by the Governors of the Bounty of Queen Anne, for the Year ended 31st day of December 1867.

Presented to the House of Commons, pursuant to Act of Parliament.

		£. s. d.	£. s. d.	CASH. £. s. d.
RECEIPTS:				
Cash Balance on the 31st December 1866				9,271 13 8
First Fruits and Tenths			14,521 7 10	
Benefactions (exclusive of the value of Lands and Hereditaments granted, and of 300 *l.* Bank Annuities, transferred to the Governors) for the Augmentation of Livings			10,835 16 –	
Free Gifts and Casual Sums (exclusive of the value of Lands and Hereditaments granted, and 64 *l.* 6 *s.* 8 *d.* Bank Annuities, transferred to the Governors) in favour of Benefices			524 18 6	
Church Discipline Penalty			210 2 10	
Produce of various Sums of Stock sold			53,317 1 3	
Income from Capital.	Dividends on Government Funds standing in the Name of the Governors	44,537 9 5		
	Ditto on Bank Annuities advanced on Mortgage	17,700 – –		
	Ditto on Bank Stock standing in the Name of the Governors	155 3 2		
	Ditto on Railway and other Property ditto	2,244 7 3		
	Interest on Moneys advanced on mortgage, under the Acts called "Gilbert's Acts"	35,279 19 6		
			99,916 19 4	
Instalments (including sums received in full of Mortgages), in part liquidation of Moneys advanced on Mortgage			101,480 – 3	
Endowment Trust Moneys (exclusive of the value of Land granted, and of 9,375 *l.* 16 *s.* 2 *d.* Bank Annuities, and 2,000 *l.* Railway Stock, transferred to the Governors) pursuant to Acts of Parliament			8,464 19 –	
Produce of Sales by Virtue of Acts of Parliament, by Incumbents of		£. s. d.		
	Bounty Lands (together with 109*l.* 11*s.* 9*d.* Bank Annuities transferred to the Governors) belonging to Benefices	32,454 8 –		
	Residence Houses ditto	5,133 1 –		
	Old Buildings, &c. Sold ditto	385 – –		
	Lands conveyed to the Ecclesiastical Commissioners ditto	1,238 10 –		
		39,210 19 –		
	Deduct Costs and Charges incurred by Incumbents on Sales paid out of purchase moneys	465 6 3		
			38,745 12 9	
Tithe Rent-charge Redemption Moneys, pursuant to Act of Parliament			4,228 5 10	
Rent-charge, Lady Godolphin's Trust, pursuant to an Order of the Court of Chancery			102 5 4	
Copyhold Enfranchisement Moneys (together with 333 *l.* 6 *s.* 8 *d.* Bank Annuities transferred to the Governors) pursuant to Act of Parliament			296 13 10	
				332,644 2 9
			£.	341,915 16 5
DISBURSEMENTS:				
Paid to the Clergy.		£. s. d.		
	Interest and Dividends on appropriated Money and Stock, both Royal Bounty and Parliamentary Grants Funds	54,482 9 9		
	Ditto ditto produce of sales of Bounty Lands	13,591 19 7		
	Dividends on appropriated Stock belonging to Endowment Trusts	21,790 13 1		
	Ditto ditto to Tithe Redemption Trusts	1,131 6 6		
	Ditto ditto to School Sites Trust	8 16 8		
	Ditto ditto to Churches in Dean Forest	309 18 2		
	Ditto ditto to Free Gifts	1,106 – 11		
	Ditto produced by Sales of Old Buildings	689 13 5		
	Ditto ditto by Sales of Residence Houses	436 14 1		
	Ditto ditto by Conveyance of Lands under Church Building Acts	181 15 5		
	Ditto produced by Sales of Lands to Railway Companies	94 11 –		
	Ditto ditto by Penalties for Non-residence	4 13 4		
	Ditto ditto by Copyhold Enfranchisements	88 14 3		
	On Account of Lady Godolphin's Rent-charge	106 4 –		
			94,023 10 2	
	Carried forward £.		94,023 10 2	

DISBURSEMENTS—*continued.*	£. s. d.	£. s. d.	CASH. £. s. d.
Brought forward		94,023 10 2	
Paid for Purchase of			
Tithe Rent-charge out of Endowment Trusts	107 – 8		
Ditto out of Produce of Sales of Bounty Lands	1,095 9 9		
Houses, Lands, and Buildings, out of appropriated Money, both Royal Bounty and Parliamentary Grants Funds	1,370 18 –		
Ditto - ditto - out of Produce of Sales of Residence Houses	1,687 10 6		
Ditto - ditto - out of Endowment Trusts	1,748 8 7		
Ditto - ditto - out of Produce of Sales of Bounty Lands	833 6 –		
Ditto - ditto - out of Church Building Acts Fund	228 5 10		
Ditto - ditto - out of Free Gift Fund	6 11 5		
Chief Rents out of appropriated Money, Royal Bounty Fund	550 – –		
Ditto - out of Produce of Sales of Bounty Lands	351 13 4		
Ditto - out of Free Gift Fund	250 – –		
	8,229 4 1		
Solicitors, for Conveyance of Lands, &c., paid out of Funds appropriated to Livings	186 12 6		
		8,415 16 7	
Paid for the Erection of Residence Houses.			
Out of appropriated Money, both Royal Bounty and Parliamentary Grants Funds	17,648 1 1		
Out of Endowment Trusts	3,174 11 5		
Out of Bounty Lands Money	1,001 10 1		
„ Produce of Sales of Residence Houses	6,350 6 2		
„ Produce of Sales of Old Buildings	136 2 4		
„ Church Building Acts Fund	20 4 2		
„ Tithe Rent-charge Redemption Fund	301 10 5		
		29,132 5 8	
Loans on Mortgage to Build, &c. Glebe Houses, &c.		98,964 – –	
Purchase of various Sums of Stock		92,050 15 1	
Return of Benefactions to Donors		150 – –	
Return of Free Gift		100 – –	
Salaries to the Secretary and Treasurer, to the Auditor, and to the Clerks, Messenger, and others		5,020 12 6	
Remuneration to Clerks, for extra Services		117 – –	
Annuity to Retired Officer of the late Office of First Fruits, per Treasury Warrant, 12th July 1839		241 15 –	
Solicitors, out of General Fund, for Conveyance of Lands, &c. purchased, General Bill, Counsel's Fees, and Disbursements		662 9 11	
Surveyor, for examining Plans and Specifications of Parsonage Houses		259 7 –	
House-rent, Repairs, and Taxes, Stationery, Stamps, Postage, Printing, and other Disbursements		866 14 7	
Dean and Chapter of St. Paul's, London, pursuant to Decree of Exchequer, 11th Elizabeth		15 16 1	
			330,020 2 7
Cash Balance carried to 1st January 1868			11,895 13 10
		£.	341,915 16 5

Examined and found correct,
Chas. Ansell, Auditor.

Christ Hodgson, Treasurer.

FIRST FRUITS Due, or in Arrear.

	NAME OF BENEFICE.	DIOCESE.	DEANERY.	COUNTY.	AMOUNT IN ARREAR. £. s. d.
V.	Axminster	Exeter	Honiton	Devon	42 16 –
V.	Ilsington	Exeter	Morton	Devon	17 11 2
R.	Mavesyn Ridware	Lichfield	Tamworth and Tutbury.	Stafford	8 5 2
R.	Markshall	Rochester	Lexden	Essex	14 8 6
R.	Silverton (due from the Estate of a former Incumbent).	Exeter	Plymtree	Devon	49 3 6

Bounty Office. *Chris^r Hodgson*, Treasurer.

TENTHS Due, or in Arrear.

	NAME OF BENEFICE.	DIOCESE.	DEANERY.	COUNTY.	AMOUNT IN ARREAR. £. s. d.
R.	Aston Sandford	Oxford	Waddesdon	Bucks	1 6 1
R.	Avening	Gloucester and Bristol	Stonehouse	Gloucester	2 8 6
R.	Bondleigh	Exeter	Chulmleigh	Devon	1 2 3
R.	Bracon Ash	Norwich	Humbleyard	Norfolk	1 – 6
R.	St. Botolph Billingsgate, with St. George, Botolph-lane.	London	East City	Middlesex	3 4 1
R.	Caldbeck	Carlisle	Alderbie	Cumberland	4 11 10
V.	Cannington	Bath and Wells	Bridgewater	Somerset	– 15 7
V.	Chaldon Herring	Salisbury	Dorchester	Dorset	– 16 7
R.	Dittisham	Exeter	Totnes	Devon	3 10 –
V.	Dinton	Oxford	Wendover	Bucks	1 15 5
V.	Eastwood	Rochester	Rochford	Essex	1 4 6
R.	Elworthy	Bath and Wells	Dunster	Somerset	– 13 2
R.	St. Gabriel Fenchurch, with St. Margaret Pattens.	London	East City	Middlesex	2 4 6
V.	Halstead	Rochester	Hedningham	Essex	1 14 6
R.	Hartfield	Chichester	Pevensey	Sussex	– 14 6
R.	Haslebury	Goucester and Bristol	Malmesbury	Wilts	– 4 –
R.	Ilsington	Exeter	Moreton	Devon	1 15 5
R.	King's-Cliffe	Peterborough	Oundle	Northampton	1 8 1
R.	Lamorran	Exeter	Powdre	Cornwall	– 12 6
R.	Llanhamllech	St. David's	Brecon, 1st Part	Brecon	– 12 8
R.	Mavesyn Ridware	Lichfield	Tamworth and Tutbury.	Stafford	– 14 9
R.	Meysey-Hampton	Gloucester and Bristol	Fairford	Gloucester	2 2 2
R.	Morton	Lichfield	Chesterfield	Derby	1 3 6
R.	St. Michael, Bassishaw	London	West City	Middlesex	1 14 6
R.	Normanton-on-Soar	Lincoln	Bingham	Notts	– 15 7
R.	Peterstow	Hereford	Irchingfield	Hereford	– 15 7
R.	Seavington, St. Michael	Bath and Wells	Crewkerne	Somerset	– 14 –
R.	South Braddon	Bath and Wells	Crewkerne	Somerset	– 10 11
R.	South Heighton, with Tarring Neville.	Chichester	Pevensey	Sussex	1 17 4
R.	Tenby	St. David's	Pembroke	Pembroke	– 17 2
V.	Towyn	Bangor	Ardudwy	Merioneth	– 13 10

Bounty Office. *Chris^r Hodgson*, Treasurer.

QUEEN ANNE'S BOUNTY.

AN ACCOUNT of all Receipts and Disbursements by the Governors of Queen Anne's Bounty, during the Year ending on the 31st day of December 1867.

(*Presented pursuant to Act.*)

Ordered, by The House of Commons, *to be Printed,*
10 *March* 1869.

[MEMORANDUM.—*This Edition of the Code is presented pursuant to Articles* 150–1, *and is confined to verbal alterations.*]

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EDUCATION.

1869.

REVISED CODE OF REGULATIONS,

WITH AN

APPENDIX OF ALL ARTICLES CANCELLED OR MODIFIED, AND OF SUPPLEMENTARY RULES,

BY

THE RIGHT HONOURABLE THE LORDS OF THE COMMITTEE OF THE PRIVY COUNCIL ON EDUCATION.

Presented to both Houses of Parliament by Command of Her Majesty.

LONDON:
PRINTED BY GEORGE EDWARD EYRE AND WILLIAM SPOTTISWOODE,
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FOR HER MAJESTY'S STATIONERY OFFICE.

1869.

[*Price 3d.*]

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REVISED CODE (1869)

OF

MINUTES AND REGULATIONS OF THE COMMITTEE OF THE PRIVY COUNCIL ON EDUCATION.

PRELIMINARY CHAPTER.

1. A SUM of money is annually granted by Parliament for public Education in Great Britain.

2. This sum is administered by an establishment called the Education Department.

3. The head of the Education Department is the Lord President of the Council, assisted by a member of the Privy Council, who is called the Vice-President of the Committee on Education, and who acts under the direction of the Lord President, and for him in his absence (Order in Council, 25 February 1856, Act 19 & 20 Vict. c. 116.).

4. The object of the grant is to promote the education of children belonging to the classes who support themselves by manual labour.

5. The means consist in aiding voluntary local exertion, under certain conditions, to establish or maintain schools, which are either:

(*a.*) For the instruction of children (*elementary*); or

(*b.*) For training schoolmasters and schoolmistresses (*normal*).

6. In elementary schools, the children attend from the homes of their parents, and charge is taken of them during the school hours only.

7. In normal schools, entire charge is taken of the students.

8. Every school aided from the grant must be either:

(*a.*) A school in connexion with some recognized religious denomination; or

(*b.*) A school in which, besides secular instruction, the Scriptures are read daily from the authorized version.

9. Aid to establish schools is given by grants towards the cost of building, enlarging, improving, or fitting up, elementary school-rooms and dwellings for elementary teachers.

Aid is not given to establish normal schools.

10. Aid to maintain schools is given by grants to the Managers conditional upon the attendance and proficiency of the scholars, the qualifications of the teachers, and the state of the schools.

11. The aid given to maintain schools is known as "Annual Grants," being annually payable, at a fixed time, to each school allowed to receive them.

12. No grants are made to schools which are not open to inspection by inspectors appointed by Her Majesty in Council on the representation of the Committee of Council on Education.

13. The Committee of Council consults the religious or educational bodies which are mentioned in Article 30 before making representations to Her Majesty for the appointment of inspectors to visit schools in connexion with those several bodies.

14. The inspectors do not interfere with the religious instruction, discipline, or management of schools, but are employed to verify the fulfilment of the conditions on which grants are made, to collect information, and to report the results to the Committee of Council.

15. No annual grant is paid, except on a report from the inspector, after a periodical visit, showing that the conditions of the grant have been fulfilled.

16. The Committee of Council, at the time of agreeing to make annual grants to an elementary school, informs the managers in what month to look for the inspector's annual visit. This month remains the same from year to year, unless the Committee of Council informs the managers of a change. The inspector gives notice of the day of his visit beforehand to the managers.

17. Annual grants are issued to each elementary school only once per annum. The year for this purpose is reckoned as ending with the last day (inclusive) of the month preceding that fixed for the inspector's annual visit.

18. Schools which have received aid for building, but are not receiving annual grants, are inspected as often as the periodical inspection of the schools receiving annual grants permits.

19. The managers of schools fulfilling the conditions of Articles 4, 6, and 8, may apply for the benefit of Article 18, without having received, or applying for, any grant.

20. The duration of the period, over which the right of inspection extends, depends upon the degree of permanency of the object for which the grant is made.

(*a.*) If the grant is made for erecting, enlarging, or improving a school, the right of inspection is secured by a clause inserted in, or endorsed upon, the school deed, and is co-extensive with the interest conveyed by that deed.

(*b.*) If the grant is annual only, the inspector's visit may at any time be declined by the managers, on forfeiting the grant depending upon it.

21. No undertaking must be commenced in general reliance upon the aid to be obtained from the Parliamentary grant. Separate applications, in the form of proposals, must, in the first instance, be addressed to the Secretary, Committee on Education, Council Office, London, S.W.

Full instructions are thereupon issued according to the particulars of the application.

The promoters, or managers, must appoint one of their own body to act as correspondent with the Education Department. Teachers cannot act as correspondents for the schools in which they are employed.

CHAPTER I.

GRANTS TO ESTABLISH ELEMENTARY SCHOOLS.

Building.

22. Aid is not granted to build new elementary schools unless their Lordships are satisfied—

(*a.*) That there is a sufficient population of the labouring class which requires a school in the vicinity.

(*b.*) That the religious denomination of the new school is suitable to the families relied upon for supplying scholars.

(*c.*) That the school is likely to be maintained in efficiency.

(*d.*) That the buildings, at the time of application, have not been begun nor contracted for, and that no trust deed has been executed.

23. The grants made by the Committee of Council for building, enlarging, improving, or fitting up elementary schools, are not to exceed *any one* of the following limits, viz. :—

1*st Limit.*—The total amount voluntarily contributed by proprietors, residents, or employers of labour *in* the parish where the school is situated, or *within* a radius of four miles from the school. Such contributions may be in the form of

(*a.*) Individual subscriptions;

(*b.*) Collections in churches or chapels in the same parish, or within the distance of four miles from the school;

(*c.*) Materials, at the price allowed for them by the contractor, or at which sold off;

(*d.*) Sites given without valuable consideration (the value to be certified by two professional surveyors);

(*e.*) Cartage (the value to be certified by the parochial surveyor of roads).

2*nd Limit.*—2*s.* 6*d.* per square foot of internal area in new school-rooms and class-rooms.

3*rd Limit.*—65*l.* for each teacher's residence.

24. The site, plans, estimates, specifications, title, and trust deed, must be previously approved by the Committee of Council.

25. The balance of expenditure which is not covered by the *voluntary local* contributions and by *the public grant*, taken together, may be made up from any other sources that are available, such as the proceeds of endowment, or subscriptions which are not local.

26. Grants are not made for rooms intended to be used on Sundays only; nor for rooms under places of worship; nor to pay off debts for building; nor in consideration of former expenditure for building; nor for maintenance of buildings; nor for improving or fitting up schools which have already received the maximum amount allowable under Article 23.

27. The extension of the area of existing school-rooms to receive more scholars, and the addition of teachers' dwellings to existing school-rooms, are treated *pro tanto* as new cases under Article 23.

28. No application can be entertained if the approved estimate (Article 24) falls below 20*l.* in small rural schools (Article 133), or 50*l.* in other schools.

The Site.

29. The site must be—

(*a.*) *In extent,*
Not less than 1,200 square yards.

(*b.*) *In situation,*
1. Not unhealthy, nor noisy.
2. Within convenient distance from the homes of the scholars.

(*c.*) *In tenure,*
Fee simple (Acts 4 & 5 Vict. c. 38., and 12 & 13 Vict. c. 49.).

(1.) Without incumbrance, or rights reserved over the surface.

(2.) If with reservation of minerals, the party in whom the fee simple of them is vested must covenant to make compensation in the event of damage, and the grant made by the Committee of Council must be the first charge upon such compensation; the whole of which is to be applied as the Secretary of State for the Home Department may direct in furtherance of the trust for a school.

(3.) If subjected to powers of leasing, sale, or re-entry, the lease or sale must not be without the written consent of the Secretary of State for the Home Department, nor the re-entry without first repaying any grant which may have been paid in respect of the premises.

(4.) Leaseholds are not admissible, if fee simple can be obtained. The term must not be less than 99 years, and there must be no onerous covenants, nor more than nominal rent.

(5.) Copyholds must be enfranchised (Act 12 & 13 Vict. c. 49. s. 6.).

The Trust Deed.

30. The trust deed must declare the premises to be granted in trust for the education of the poor, and for no other purpose whatever. It must also provide for the legal ownership of the premises, and for the inspection and management of the school, according to one or other of the precedents settled for: Church of England Schools, British Schools, Established Church of Scotland Schools; Wesleyan Schools, Free Church (Scotland) Schools, Roman Catholic Schools, Jewish Schools, Episcopal Church (Scotland) Schools, Undenominational Schools (belonging to none of the previous classes, but in which the Bible is read daily from the authorized version).

31. When the trust deed has been executed according to a draft approved and sealed by the Committee of Council, and (when necessary) enrolled or registered, a copy of it, including all signatures, attestations, and endorsements, must be made on plain unstamped parchment, and lodged in the Education Office.

32. When the application is for a grant to enlarge, improve, or fit up, an existing elementary school already conveyed in trust, the deed must be a legal conveyance of the land, and not at variance with any of the principles which determine the approval of new deeds. The right of inspection must be permanently secured (Act 7 & 8 Vict. c. 37. sections 1 and 2), and there must be no powers or reservations to which the Act 18 & 19 Vict. c. 131. cannot be applied, and which might become prejudicial to the school.

The Plans.

33. The plans (with specification and estimate), when approved and sealed, may be returned to the promoters for use, but must be lodged in the Education Office before a grant is paid.

Payment of Grants for Building, Enlarging, Improving, or Fitting up Elementary Schools.

34. The amount of the grant is not announced until after the draft trust deed and plans have been sealed.

35. The grant must be accepted or declined within 14 days.

36. The grant is paid on presentation of a certificate (with balance sheet annexed), by the Building and Managing Committees of the school, setting forth that the building and conveyance are completed, and that the money in hand, raised by absolute donations, will, when added to the grant, meet all claims, and finally close the account.

37. Grants under 50*l.* are treated as lapsed, if unpaid at the end of nine months, and grants above 50*l.* at the end of eighteen months, from the date of announcing them.

CHAPTER II.

GRANTS TO MAINTAIN SCHOOLS.

PART I.

ELEMENTARY SCHOOLS.

Section I.

ANNUAL GRANTS CONDITIONAL UPON THE NUMBER AND PROFICIENCY OF THE SCHOLARS, THE NUMBER AND QUALIFICATIONS OF THE TEACHERS, THE STATE OF THE SCHOOLS, AND THE DESTINATION OF THE PUPIL-TEACHERS.

38. Schools may meet three times daily; viz., in the morning, afternoon, and evening.

39. Schools which do not meet more than once daily cannot receive grants.

40. The managers of schools may claim at the end of each year, defined by Article 17:

(*a.*) The sum of 4*s.* per scholar according to the average number in attendance throughout the year at *the morning and afternoon* meetings, not being less than 400, of their school, and 2*s.* 6*d.* per scholar according to the average number in attendance throughout the year at *the evening* meetings, not being less than 40, of their school.

(*b.*) For every scholar who has attended more than 200 morning or afternoon meetings of their school:—

1. If more than six years of age 8*s.*, subject to examination (Articles 46 and 48).
2. If under six years of age, and present, except in united schools (Article *138[2]), on the day of the examination, 6*s.* 6*d.*, subject to a report by the inspector that such children are instructed suitably to their age, and in a manner not to interfere with the instruction of the older children.

(*c.*) For every scholar who has attended more than 24 evening meetings of their school 5*s.*, subject to examination (Article 46, *a*).

*40[1]. The average number of scholars in attendance for any period is found by adding together the attendances (Article 41) of all the scholars for the same period, and dividing the sum by the number of times the school has been open within the same period; the quotient is the average number in attendance.

41. Attendance at a morning or afternoon meeting may not be reckoned for any scholar who has been under instruction less than two hours, nor attendance at an evening meeting for any scholar who has been under instruction less than one hour and a half.

42. Evening attendances may not be reckoned with morning or afternoon attendances in making up the prescribed minimum of 200 or 24 attendances.

43. Evening attendances may not be reckoned for any scholar under 12 years of age.

44. Every scholar attending more than 200 times in the morning or afternoon, for whom 8*s.* is claimed, forfeits 2*s.* 8*d.* for failure to satisfy the inspector in reading, 2*s.* 8*d.* in writing, and 2*s.* 8*d.* in arithmetic (Article 48).

*44[1]. Evening scholars may be examined by the inspector at the time of his visit (Article 16), or, when more convenient, at another time under the direction of the managers (Articles 142–9).

45. Every scholar attending more than 24 times in the evening for whom 5*s.* is claimed forfeits 1*s.* 8*d.* for failure to satisfy the inspector in reading, 1*s.* 8*d.* in writing, and 1*s.* 8*d.* in arithmetic (Article 48).

46. Every scholar for whom the grants dependent upon examination are paid (Article 40, *b*, 1, and *c*) must satisfy the inspector either—

(*a.*) According to one of the following standards (Article 48); or

(*b.*) In some specific subject of secular instruction, provided for in the time tables of the school in use throughout the past year (Article 17), beyond Standard VI.

*46[1]. No scholar attending in the morning or afternoon may be presented a second time for examination—

(*a.*) under the same or a lower standard† (Article 46, *a*); nor

(*b.*) beyond Standard VI (Article 46, *b*).

*46[2]. Articles 46, *b*, and 46[1], *a* do not apply to evening scholars.

47. Under any Half Time Act, 100 attendances (Article 41) qualify individual scholars for the grant offered by Article 40, *b*:—

(*a.*) Upon examination.

(*b.*) Without examination, after they have satisfied the inspector according to the highest standard (Article 48), but continue to attend school under the Act.

*47[1]. In calculating (Article 40[1]) the average number in attendance, the attendances (Article 41) of half time scholars reckon for no more than those of other scholars.

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* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of such Articles as are not substantially altered.

† See Supplementary Rules, pages 23–4, columns VIII*a.*, VIII*b.*

48.	Standard I.	Standard II.	Standard III.	Standard IV.	Standard V.	Standard VI.
Reading -	Narrative in monosyllables.	One of the Narratives next in order after monosyllables in an elementary reading book used in the school.	A short paragraph from an elementary reading book used in the school.	A short paragraph from a more advanced reading book used in the school.	A few lines of poetry from a reading book used in the first class of the school.	A short ordinary paragraph in a newspaper, or other modern narrative.
Writing -	Form on black-board or slate, from dictation, letters, capital and small, manuscript.	Copy in manuscript character a line of print.	A sentence from the same paragraph, slowly read once, and then dictated in single words.	A sentence slowly dictated once by a few words at a time, from the same book, but not from the paragraph read.	A sentence slowly dictated once, by a few words at a time, from a reading book used in the first class of the school.	Another short ordinary paragraph in a newspaper, or other modern narrative, slowly dictated once by a few words at a time.
Arithmetic	Form on black-board or slate, from dictation, figures up to 20; name at sight figures up to 20; add and subtract figures up to 10; orally, from examples on black-board.	A sum in simple addition or subtraction, and the multiplication table.	A sum in any simple rule as far as short division (inclusive).	A sum in compound rules (money).	A sum in compound rules (common weights and measures).	A sum in practice or bills of parcels.

49. The grant may either be withheld altogether, or reduced, for causes arising out of the state of the school.

50. The inspector does not proceed to examine scholars in reading, writing, and arithmetic for the grant, until he has first ascertained that the state of the school does not require it to be withheld.

51. The grant is withheld altogether,—

(*a.*) If the school be not held in a building certified by the inspector to be healthy, properly lighted, drained, and ventilated, supplied with offices, and containing in the principal school-room at least 80 cubical feet of internal space for each child in average attendance.

(*b.*) If the principal teacher be not duly certificated (Article 67) and duly paid. Teachers certificated before 31st March 1864, and who have not otherwise agreed with their employers, are duly paid if they receive not less than three times the grant allowable upon their certificates in Articles 64–5 of the Code of 1860, and they have a first charge to the extent of this grant, being one-third of such due payment, upon the money received by the managers, under Article 40.

Exceptions :—

1. United schools (Article 136).
2. Infants, in a separate room, whose average number in attendance throughout the year (Article 17) does not exceed 40, and who form part of one school under a certificated teacher in the same premises.

(*c.*) If the girls in the school be not taught plain needlework as part of the ordinary course of instruction.

(*d.*) If the registers, accounts, and certificates (Articles 79, and 88, *columns* 2–3) do not warrant confidence.

(*e.*) If, on the inspector's report, there appears to be any *primâ facie* objection* of a gross kind. A second inspection, wherein another inspector (or inspectors) takes part, is made in every such instance, and if the grant be finally withheld, a special minute is made and recorded of the case.

(*f.*) If three persons at least be not designated to sign the receipt for the grant on behalf of the school.

52. The grant is reduced,—

(*a.*) By not less than one-tenth nor more than one-half in the whole, upon the inspector's report, for faults of instruction* or discipline on the part of the teacher, or (after one year's notice) for failure on the part of the managers to remedy any such defect in the premises as seriously interferes with the efficiency of the school, or to provide proper furniture, books, maps, and other apparatus of elementary instruction.

(*b.*) By sums of 10*l.*, for every 40 or 80, after the first 50, of the average number of scholars in attendance, unless there be either one pupil-teacher fulfilling the conditions of Articles 81–9 for every such 40 scholars, or one certificated or assistant teacher fulfilling the conditions of Articles 67 and 91–3 respectively for every such 80 scholars.

The forfeiture is reduced from 10*l.* to 5*l.* if the failure to comply with these Articles be confined to the examination of a pupil-teacher (Article 88); but this reduction is made only once for the same pupil-teacher, and not in successive years for the same school.

Pupil-teachers cannot be apprenticed in schools under teachers certificated in the lower grade of the fourth class (Articles 131–2), nor in united schools (Articles 135–140).

* In Church of England Schools the Order in Council of 10th August 1840, and the instructions to inspectors relative to examination in religion, which are founded upon it, are included under this paragraph.

(*c.*) By its excess above,—

1. The amount of school fees and subscriptions; or
2. The rate of 15*s.* per scholar according to the average number in attendance,

} in the year defined by Article 17.

(*d.*) By the amount of any annual endowment (Article 93[3]).

53. If the excess of scholars has arisen from increased attendance of children since the last settlement of the school staff (Articles 62, 63), the forfeiture prescribed by Article 52 (*b*), does not accrue.

*53[1]. The reduction prescribed by Article 52 (*d*) is suspended, as long as the grant and the endowment together do not make a total sum exceeding the rate of 15*s.* per scholar according to the average number in attendance in the year defined by Article 17.

54. (For the Article formerly 54 see 54[1]). The grant is increased at the rate of 1*s.* 4*d.* per examination satisfying the inspector (*pass*) in reading, writing, or arithmetic (Article 48), up to any number of such examinations, not exceeding 120, on the following conditions, viz.:—

(*a.*) The number of teachers must have allowed, throughout the past year (Article 17), for every 40 or 80 after the first 25, of the average number of scholars in attendance either one pupil-teacher fulfilling the conditions of Articles 81–9 for every such 40 scholars, or one certificated or assistant teacher fulfilling the conditions of Articles 67 and 91–3 for every such 80 scholars.

(*b.*) The number of passes in reading, writing, and arithmetic must—

1. exceed 200 per cent. of the annual average number of scholars in attendance who are over six years of age. In schools where the calculation of average attendance is made indiscriminately upon scholars above and scholars under six years of age, the school registers of age are to determine in what ratio the average number in attendance is to be divided.
2. fall under Standards IV.—VI., to the extent of at least one-fifth part of the whole number of passes.

(*c.*) The time tables of the school, in use throughout the past year (Article 17), must have provided for one or more specific subjects of secular instruction beyond Article 48. The inspector must name the specific subject or subjects in his report, and must state that at least one-fifth part of the average number of scholars over six years of age have passed a satisfactory examination therein.

*54[1]. (This Article was numbered 54 in the Code of 1867. It has expired except with regard to *Scotland*, and is verbally altered to adapt it to its now limited application.) Pupil-teachers engaged with the consent of the Committee of Council on Education according to the form of indenture in use under the Code of 1860, and the masters or mistresses by whom they are instructed, have a second charge for their several stipends and gratuities so long as their service fulfils the conditions prescribed by the Code of 1860, upon the money received by the managers under Article 40; and in case the money so received shall not be sufficient to meet the second charge upon it, the Committee of Council will add the sum requisite to make up the deficiency.

55. In every school receiving annual grants, there must be provided, out of the school funds, besides the ordinary registers of attendance,—

(*a.*) A diary or log-book.

(*b.*) A portfolio wherein may be laid all official letters, which should be numbered (1, 2, 3, &c.) in the order of their receipt.

Diary or Log Book of School.

56. The diary or log-book must be stoutly bound and contain not less than 500 ruled pages.

57. The principal teacher must daily make in the log-book the briefest entry which will suffice to specify either ordinary progress, or whatever other fact concerning the school or its teachers, such as the dates of withdrawals, commencements of duty, cautions, illness, &c., may require to be referred to at a future time, or may otherwise deserve to be recorded.

58. No reflections or opinions of a general character are to be entered in the log-book.

59. No entry once made in the log-book may be removed nor altered otherwise than by a subsequent entry.

60. The inspector will call for the log-book at his annual visit, and will report whether it appears to have been properly kept throughout the year.

61. The inspector will not write any report on the good or bad state of the school in the log-book at the time of his visit, but will enter therein with his own hand the full name and standing (*certificated teacher of the —— class*, or *pupil-teacher of the —— year*, or *assistant-teacher*) of each member of the school establishment. The inspector

* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of such Articles as are not substantially altered.

will not enter the names of pupil-teachers respecting whose admission the Committee of Council has not yet pronounced a decision.

62. The summary of the inspector's report when communicated by the Committee of Council to the managers must be copied into the log-book by the secretary of the latter, who must also enter the names and description of all teachers to be added to, or withdrawn from, those entered by the inspector, according to the decision of the Committee of Council upon the inspector's report. The secretary of the managers must sign this entry.

63. The inspector before making his entry of the school establishment in the following year will refer to his own entry made in the preceding year, and also to the entry which is required to be made by the secretary of the school pursuant to Article 62, and he will require to see entries in the log-book accounting for any subsequent change of the school establishment.

*63[1]. A log-book must be kept in each united school (Article 141 *b*).

Section II.

Teachers referred to in the preceding Section.

64. The recognized classes of teachers are,—(*a.*) Certificated teachers. (*b.*) Pupil-teachers. (*c.*) Assistant teachers.

65. Lay persons alone can be recognized as teachers in elementary schools.

Certificated Teachers.

66. Teachers in order to obtain certificates, must be examined (Article 130), and must undergo probation by actual service in school (Articles 73, 74).

67. Certificates are of four classes. The fourth (lowest) class consists of an upper and a lower grade (Article 131), and includes special certificates for teachers of infants (Article 122). No certificate is issued above the fourth class. Certificates are raised to the higher classes by good service only (Article 78).

Examination.

68. Teachers are examined for certificates as means of distributing the Parliamentary grant to schools. The examination is not open to candidates for professional diplomas only.

69. Examinations are held in December of each year at the several training schools under inspection (Articles 119 and 128). The relative proficiency of the candidates according to examination is recorded upon their certificates, but does not affect the class of them (Article 67).

70. A syllabus, for male and female candidates respectively, of the course of study, may be had on application to the Committee of Council.

71. The names of teachers desiring to be examined must be notified by the managers of their schools to the Committee of Council before the 1st day of November preceding the examination.

72. Candidates admissible to be examined for certificates must be,—

(*a.*) Students in normal schools under inspection (Articles 94, 119, and 120–1); *or*,

(*b.*) Teachers who, besides satisfying Articles 68 and 71, are upwards of 22 years of age, and have either—

1. completed an engagement as pupil-teacher satisfactorily; *or*,
2. obtained at least two favourable reports with an interval of one year between them upon the school in which they are still employed.

Probation.

73. Candidates for certificates, after successfully passing their examination, undergo probation (*that is to say*), they must, as teachers continuously engaged in the same schools, obtain two favourable reports from the inspector, with an interval of one year between them; and, if the first of these reports be not preceded by service of three months (at the least) since the examination, a third report, at an interval of one year after the second report, is required.

74. One favourable report is sufficient after the examination, if the candidate, being continuously engaged in the same school, has obtained two favourable reports in consecutive years immediately preceding the examination.

74[1]. The inspector reports of each school visited by him whether it is efficient in organization, discipline, and instruction.

75. Teachers under probation (Articles 73–4) satisfy the conditions which require that schools be kept by certificated teachers.

Revision.

76. If the second (or third) report is favourable, a certificate of the fourth class is issued, and remains in force (unless recalled under Articles 74[1] and 79) for the next five years; after which interval, it is open to revision, according to the intermediate annual reports; and so on after each further period of five years until the first class is reached.

* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of such Articles as are not substantially altered.

77. No teacher who has changed more than once from one school to another during the five years preceding revision can be advanced to a higher class.

78. Re-examination is not permitted to candidates once passed, unless they fall under Article 131.

Concurrence of Managers.

79. The managers must annually state whether the teacher's character, conduct, and attention to duty have been satisfactory.

*80.

Pupil-teachers.

81. Pupil-teachers are boys or girls employed to serve in a school under inspection on the following conditions, namely:—

(*a.*) *That the school* is reported by Her Majesty's Inspector to be—

1. Under a duly certificated master or mistress (Articles 67 and 131).
2. Held in suitable premises.
3. Well furnished, and well supplied with books and apparatus.
4. Divided into classes, and skilfully instructed.
5. Under good discipline.
6. Likely to be maintained during the period of engagement.

(*b.*) *That the pupil-teachers* be not less than 13 years (completed) of age at the date (*see marginal note* 6) of their engagement.

(*c.*) Be of the same sex as the principal teacher of the school, or department of a school, in which they are employed; but in mixed schools, or departments of schools, under a master and mistress, female pupil-teachers may receive instruction out of school-hours from the master, on condition that the mistress be invariably present during the whole time that the lessons are being given by the master, who must be husband, father, son, or brother of the mistress, and not both young and unmarried.

(*d.*) Be presented to the inspector for examination at the time and place fixed by his notice (Article 16).

(*e.*) Pass the examinations and produce the certificates specified in Article 88.

(*f.*) *That the managers* enter into an agreement in the following terms:—

To be stamped with a stamp of 2*s.* 6*d.*

MEMORANDUM OF AGREEMENT between [1] _____

_____

_____

_____ herein-after called *the managers*, on behalf of the Managers of the _____ School and [2] _____ herein-after called *the surety*, the [3] _____ of [4] _____ herein-after called *the pupil-teacher*.

The said managers for themselves, their executors, administrators, and assigns, agree with the said surety h[5] _____ executors, administrators, and assigns, as follows:

1. The said managers agree to engage the said pupil-teacher to serve under a certificated teacher during the usual school hours in keeping and teaching the said school, but so that the said pupil-teacher shall not be obliged to serve therein more than six hours upon any one day, nor more than 30 hours in any one week. Sunday is expressly excluded from this engagement, and all duties intended to be performed by the pupil-teacher on that day are left to be separately agreed upon.

2. This engagement shall begin on the first day of [6] _____ 186__, and shall end on the last day of [7] _____ 18[8] _____, but if the said pupil-teacher shall, with the consent of the other parties hereto, attend one of the examinations held by Her Majesty's inspectors of schools for admission into Normal Schools in December next preceding the last-mentioned date, this engagement may end on the 31st day of the said month of December.

3. The said pupil-teacher shall be paid as wages [9] _____ per [10] _____ in the first year, and this sum shall be increased by [9] _____ per [10] _____ in each subsequent year of the engagement, but such increase may be stopped at the discretion of the managers of the said school for the time being for the unexpired remainder of any year after receipt of notice from the Committee of Council that the said pupil-teacher has

[1] Names, &c. in full of a quorum of the Managers.

[2] Names, &c. in full of father or other surety of the assistant.

[3] Father, or as the case may be.

[4] Name in full of the pupil-teacher.

[5] His or her.

[6] The month defined by Article 16.

[7] Preceding month

[8] Five full years; or any less number of years not under two, provided (*a.*) that the candidate has passed for admission the examination fixed for a later year in proportion to the reduced term of service; and provided also (*b.*) that the end of the reduced term of service fall beyond the candidate's 19th year (completed).

[9] The sum to be inserted must be fixed at the discretion of the parties, having in view the local rate of wages, and the advantages of the school as a place wherein to learn the business of a teacher.

[10] Week, or as the parties may agree.

* Retained in order to preserve (for purposes of reference and quotation) the numbering of those articles which are not substantially altered.

failed to pass the examination, or to fulfil the other conditions, of a pupil-teacher according to the standard of the preceding year as prescribed in the Articles of the Code of the said Committee applicable to the case.

4. The said pupil-teacher either while the school is not being held, or as one of the scholars (if any) attending the school for instruction in the evening, shall receive, without charge, from the certificated teacher of the said school for the time being, special instruction during five hours per week, of which hours not more than two shall be part of the same day. Such special instruction shall be in the subjects in which the said pupil-teacher is next to be examined pursuant to the said Articles.

5. The said pupil-teacher shall be liable to dismissal without notice for idleness, disobedience, or immoral conduct, of a gross kind respectively; and this engagement shall be terminable on either side by a written notice of six months, or in lieu of such notice, by the payment on either side of 3*l.* in the first year, 4*l.* in the second, and an additional pound in each succeeding year of the engagement, but never exceeding 6*l.* in the whole; such payment to be recoverable as a debt by the party entitled to receive it, and to be over and above the settlement of all other accounts between the parties.

6. The said pupil-teacher enters into this engagement freely and voluntarily on h[5]_____ own part, and with the privity and consent of the said surety.

7. The said surety agrees with the said managers, their executors, administrators, and assigns, to clothe, feed, lodge, and watch over the said pupil-teacher during the continuance of this engagement in a manner befitting the same.

[11] All the parties named must sign, but need not do so together. Each signature should be written in a separate line, and must be attested by that of a witness who sees it made. The same witness may attest more than one signature.

Signed[11] this _____ day of _____

_____ in the presence of _____

_____ in the presence of _____

_____ in the presence of _____

N.B.—This agreement should be deposited with the school papers (Article 55). The surety should have either an executed duplicate (which requires a second stamp), or at least a certified copy. The agreement exists only between the persons who sign it. If any of them are changed (*by removal of managers, or otherwise*), forms and instructions for a new agreement (with stamp) may be obtained upon application (Article 21) to the Committee of Council.

82. The Committee of Council on Education is not a party to the engagement, and confines itself to ascertaining, on the admission of the pupil-teacher and at the end of each year of the service—

(*a.*) Whether the prescribed examination is passed before the inspector.

(*b.*) Whether the prescribed certificates are produced from the managers.

83. Whatever other questions arise upon the engagement may be referred to the Committee of Council on Education (provided that all the parties agree in writing to be bound by the decision of Their Lordships as final), but, otherwise, must be settled like any other matter of hiring or contract.

84. Vacancies in the office of pupil-teacher, however occasioned, which occur in the course of any year (Article 17), must not be filled up until after the next examination by the inspector. In the meantime, the candidate or candidates must be engaged by the week only as monitors, and the memorandum of agreement, Article 81 (*f*), must not be executed until after notice from the Committee of Council (Article 62) to the managers that the conditions of admission to pupil-teachership are fulfilled in each case.

85. Temporary monitors engaged by the week, pursuant to Article 84, for the supply of vacant pupil-teacherships during a current year (Article 17), satisfy Article 52 (*b*), provided that—

(*a.*) A sufficient number of candidates to complete the requisite proportion of teachers to scholars pass the inspector's next examination for admission (Article 88) to permanent engagements; and—

(*b.*) The vacancies have not been occasioned by voluntary causes (*i.e.*, causes for which any of the parties to the agreement can be held responsible) before the fourth year's examination has been passed.

86. Except in the cases provided for by Article 85, each vacancy in a pupil-teachership during a current year (Article 17) works a forfeiture under Article 52 (*b*).

87. The qualifications and certificates required of candidates for admission and of pupil-teachers in each year of their service are regulated by the following Table.

88.]	1. Health. *Scrofula, fits, asthma, deafness, great imperfections of the sight or voice, the loss of an eye from constitutional disease, or the loss of an arm or leg, or the permanent disability of either arm or leg, curvature of the spine, hereditary tendency to insanity, or any constitutional infirmity of a disabling nature, is a positive disqualification in candidates for the office of pupil-teacher.*	Certificates of Character and Conduct. 2. In Church of England Schools.	3. In Schools not being Church of England Schools.	4. Reading.	5. English Grammar. [*After Admission, Latin Grammar, as alternative.*]	6. Writing and Composition.	7. Arithmetic and Mathematics.	
For Admission.	A *medical* certificate that candidate is not subject to any infirmity likely to interfere with profession of teacher.	A certificate from the clergyman and managers that the moral character of the candidates and of their homes justifies an expectation that the instruction and training of the school will be seconded by their own efforts and the example of their parents.	A certificate from the managers that the moral character of the candidates and their families justifies an expectation that the instruction and training of the school will be seconded by their own efforts and the example of their parents.	To read with fluency, ease, and expression.	To point out the parts of speech in a simple sentence.	To write from dictation in a neat hand, with correct spelling and punctuation, a passage of simple prose.	To write from dictation sums in the first four rules of arithmetic, simple and compound, and to work them correctly, and to know the tables of weights and measures.	
							Male Pupil-teachers.	Female Pupil-teachers.
End of 1st Year	Certificate from managers that pupil-teacher has not suffered any failure of health likely to incapacitate for profession of teacher.	1. Certificate of good conduct from the managers. 2. Certificate of punctuality, diligence, obedience, and attention to their duties, from the master or mistress. 3. Certificate from the clergyman that they have been attentive to their religious duties.	1. Certificate of good conduct from the managers. 2. Certificate of punctuality, diligence, obedience, and attention to their duties, from the master or mistress. 3. Certificate from the managers that they have been attentive to their religious duties; but this certificate is not required if the managers on religious grounds object to give it, and if the school fulfils the conditions of Article 8.	Improved articulation and expression in reading.	The noun, verb, and adjective; with their relations in a simple sentence. [*As an alternative exercise, the regular declensions of Latin nouns, and the meaning in English of the Latin prepositions.*]	To write from memory the substance of a passage of simple prose, read to them with ordinary quickness.	Practice and proportion.	Practice and bills of parcels.
End of 2d Year.	Same as at end of first year.	Same as above -	Same as above -	Improved articulation and expression in reading.	The pronoun, adverb, and preposition; with their relations in a sentence. [*As an alternative exercise, the regular declensions of Latin adjectives, and the Latin pronouns.*]	To write as above, and to be able to repeat 50 consecutive lines of a secular character from some standard English poet (selected by the managers) with just expression and knowledge of meaning.	Vulgar fractions.	Proportion
End of 3d Year.	Same as at end of first year, but *from medical practitioner.*	Same as above -	Same as above -	Improved articulation and expression in reading.	The conjunction with the analysis of sentences. [*As an alternative exercise, the conjugation of Latin regular verbs (active and passive), and of the verb esse.*]	To write notes of a lesson on a subject selected by the inspector; and to be able to repeat 40 consecutive lines of a secular character from some standard writer of English prose (selected by the managers), with just expression and knowledge of the meaning.	Decimal fractions; and Euclid, Book I., to end of XVth Proposition.	Vulgar fractions.
End of 4th Year	end of first	Same as above -	Same as above -	Improved articulation and expression in reading.	Recapitulation of the preceding exercises, and to know the meaning in English of the Latin prepositions. [*As an alternative exercise, the conjugation of the verbs posse, velle, and the concords.*]	To write an account of the organization of the school, and of the methods of instruction used: and to be able to repeat 100 lines (including the former 50) of the same poet as at the end of the 2d year, with just expression and knowledge of the meaning.	Euclid, Book I., to the end of XXVIth Proposition; Algebra, first four rules; and recapitulation of preceding rules in Arithmetic.	Decimal fractions.
End of 5th Year	Same as at end of first year.	Same as above -	Same as above -	Improved articulation and expression in reading.	Recapitulation of the preceding exercises, and an account of the sources and growth of the English language. [*As an alternative exercise, recapitulation of the preceding exercises in Latin.*]	To write an original composition on some simple subject to be selected by the inspector within the range of this Table, and to be able to repeat (including the former 40) 80 lines of the same prose writer as at the end of the 3d year, with just expression and knowledge of the meaning.	Euclid, Book I.; and recapitulation of the preceding rules in Arithmetic and Algebra.	Recapitulation of the preceding rules.

8. Geography.	9. History.	10. Teaching.*	11. Drawing. *Where suitable Means of Instruction exist.*	12. Music. *Where suitable Means of Instruction exist.*	Religious Knowledge. 13. In Church of England Schools, the Clergyman assisting in the Examination.	14. In Schools in Scotland.	15. In Schools where the Managers are not desirous of coming under the Obligation of giving the Instruction set forth in the Two preceding Columns.	16. In Schools where the Managers object on Religious Grounds to give any Certificate concerning the Religious State of their Schools.
To have an elementary knowledge of geography.	- - -	To teach a junior class to the satisfaction of the inspector.	1. If exercises in freehand, linear geometry, linear perspective, and model and object drawing be worked successfully during the apprenticeship, the fact is registered, and the pupil-teacher is credited with a corresponding number of marks in any future examination for a teacher's certificate.	- - -	To repeat the Church Catechism, and to show that they understand its meaning, and are acquainted with the outlines of Scripture History.	To repeat the Assembly's Shorter Catechism, and to show that they understand its meaning, and are acquainted with the outlines of Scripture History.	To produce a certificate from the managers of the school that the religious knowledge of the candidate is satisfactory to them.	No annual certificates are required, but it must have appeared that the school fulfils the conditions of Article 8.
The British Isles. [Maps to be drawn in this and the following years.]	- - -	To give a class a reading lesson, and to examine it on the meaning of what has been read.	2. The exercises may be worked in any order throughout the years of apprenticeship. 3. Pupil-teachers may study and be examined (about *March* in each year) at any of the drawing schools in connexion with the Department of Science and Art. 4. Pupil-teachers, although not studying at such drawing schools, may be permitted (by arrangements between the managers of the schools in which they are apprenticed and the master of any such drawing school) to be annually examined there. 5. An annual examination in drawing is also held in *November* at each of the Normal Colleges (Article 94*a*), and pupil-teachers, who obtain permission from the authorities of them, may attend there, if more convenient, for examination. 6. For detailed information respecting the means of instruction, and the places and times of examination, apply by letter to "The Secretary, Department of Science and Art, South Kensington, London, W." Candidates for examination in drawing cannot be examined on the occasion of the Inspector's visit.	Shapes of notes and rests. Staves. Places of notes on the treble stave.	The Holy Scriptures and Catechism, with illustrations by passages from Holy Writ.	The Holy Scriptures and the Assembly's Shorter Catechism, with illustrations by passages from Holy Writ.	Same as above.	—
Europe and ancient Palestine.	- - -	To examine a class in the rudiments of grammar and arithmetic, and during the examination to keep the class attentive, in order, and in activity, without undue noise.		Dotted notes and rests. Time, various kinds of, and signatures of. Diatonic scale.	The Holy Scriptures, Liturgy, and Catechism, more fully than in the preceding year.	The Holy Scriptures and the Assembly's Shorter Catechism, more fully than in the preceding year.	Same as above.	—
The colonies.	The succession of the English Sovereigns from the reign of Egbert, with dates, to the present time. [*In Scotland, if preferred, the succession of Scottish Sovereigns from Alexander III., may be substituted for the English Sovereigns preceding James I.*]	To manage and examine the second class in grammar, geography, and mental arithmetic.		Intervals. Sharps and flats. Accidental intervals.	More fully in the Holy Scriptures, Liturgy, and Catechism.	More fully in the Holy Scriptures, and the Assembly's Shorter Catechism.	Same as above.	—
Asia and Africa.	Outlines of British history to the accession of Henry VII.	To manage and examine the first class in grammar, geography, and mental arithmetic, and to give a lesson to two or three classes grouped together.		Places of notes on the bass stave. Major and minor scales. Common characters used in music.	More fully in the Holy Scriptures, Liturgy, and Catechism.	More fully in the Holy Scriptures, and the Assembly's Shorter Catechism.	Same as above.	—
America and the oceans.	Outlines of British history from the accession of Henry VII. to the present time.	To give a gallery lesson, and to conduct the instruction of the first class in any subject selected by the inspector.		Transposition. Alto and tenor staves. Recapitulation of preceding exercises.	More completely in the Holy Scriptures, Liturgy, and Catechism.	More completely in the Holy Scriptures, and the Assembly's Shorter Catechism.	Same as above.	—

* *See* note § §, *infra*, p. 21.

89. Female pupil-teachers, before admission to apprenticeship, must produce a written attestation from the schoolmistress and managers that they possess reasonable competency as sempstresses; and, at the annual examinations, must bring certified specimens of plain needlework to the inspector, together with a statement from the schoolmistress specifying whether they have been receiving practical instruction in any other kind of domestic industry. The inspector, at the time of examination, or afterwards, will obtain the opinion of some competent person upon the merit of the needlework.

Pupil-teachers who have successfully completed their Apprenticeship.

90. At the close of the apprenticeship pupil-teachers are perfectly free in the choice of employment. Any person properly interested in knowing the character of a pupil-teacher may apply to the Committee of Council for a testimonial, declaring that the pupil-teacher has successfully completed an apprenticeship; or the pupil-teacher, if willing to continue in the work of education, may become an assistant in an elementary school (Article 91), or may be examined as a candidate for admission into a normal school (Articles 103–111), or may be provisionally certificated for immediate service in charge of small rural schools (Articles 132, 133).

*90[1]. The managers of schools, wherein it appears from the inspector's last report that the number of teachers throughout the year (Article 17) has been sufficient to satisfy Article 54, *a*, may claim grants,—

1. At the rate of 10*l.* for every male pupil-teacher admitted (Articles 105–110) into a normal school from candidates placed by examination in the first class, and 5*l.* for every male pupil-teacher so admitted from candidates placed in the second class; also
2. For every male pupil-teacher who, having been admitted (Articles 105–110) into a normal school, is at the end of his first year's residence placed in the first or second division (Articles 119, 121, 102[3]); viz., 8*l.* for every such pupil-teacher placed in the first division, and 5*l.* for every such pupil-teacher placed in the second division of students.

Assistant Teachers.

91. Pupil-teachers who can be certified, pursuant to Article 90, to have completed their apprenticeship with credit, may serve as assistants in schools in place of pupil-teachers, without being required to be annually examined. But such assistants cease to fulfil the conditions of Article 52 (*b*), if at any time the inspector reports them to be inefficient teachers, or if they fail to produce from the managers, and from the principal teacher, of their school, the same certificates of conduct, attention to duty, and obedience, as are required from pupil-teachers.

92. Vacancies caused by the withdrawal of assistants in the course of any school year (Article 17) must be supplied by the appointment of temporary monitors, pursuant to Articles 84, 85; but if another assistant, qualified according to Article 91, be appointed before the inspector's next examination, the temporary monitors who preceded such appointment are not required to be examined.

93. Assistants are left entirely at liberty to make their own terms with their employers, both as to hours and wages.

Section III.

ENDOWMENTS.

*93[1]. An endowed school is one deriving income from property inalienably appropriated to it, or to education.

*93[2]. Endowed schools, in order to be admissible to receive either grants or inspection, must fulfil the conditions of Articles 4, 6, and 8.

*93[3]. Annual Grants (Article 40) to endowed schools are reduced by the amounts of their income (Article 52 *d.*) from endowment; but the reduction is suspended as long as the grant and the endowment together do not make a total sum exceeding the rate of 15*s.* per scholar according to the average number in attendance in the year defined by Article 17 (*Article 53[1]).

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* Thus numbered in order to preserve (for purposes of reference and quotation) the numbering of such Articles as are not substantially altered.

PART II.

NORMAL SCHOOLS.

Section I.

94. A normal school includes—

(*a.*) A college, for boarding, lodging, and instructing candidates for the office of teacher in schools for the labouring classes; and

(*b.*) A practising department, in which such candidates may learn the exercise of their profession.

95. No grant is made to a normal school unless the Committee of Council is satisfied with the premises, management, and staff.

96. No grant is made for building, enlarging, improving, or fitting up the premises of normal schools.

Section II.

Grants to Normal Schools.

97. To the practising departments (Article 94, *b*), the same annual grants (Article 40) are made as to other elementary schools fulfilling the conditions of Articles 4, 6, and 8.

98. To the colleges (Article 94, *a*), annual grants are made of 100*l.*, in five successive payments of 20*l.* per annum for every master, and of 70*l.* in five successive payments of 14*l.* per annum for every mistress who, having been trained in them, during two years, has, since December 1862,—

(*a.*) completed the prescribed period of probation (Articles 73–6), and become qualified to receive a certificate in a school fufilling the conditions of Articles 4, 6, and 8, or 94; *or*

(*b.*) been reported by the proper department in each case to have completed a like period of good service as an elementary teacher in the Army or Royal Navy, or (within Great Britain) in Poor Law Schools, Certified Industrial Schools, or Certified Reformatories.

99. Masters and mistresses who have been trained for one year only may obtain certificates after probation (Articles 73–6), or may be reported by the proper department (Article 98, *b*), upon the same terms as others; and five annual grants, of half the amount specified in Article 98, may be made for them to the colleges in which they were trained, provided—

(*a.*) they completed their training before 1st January 1864; *or*

(*b.*) are teachers of infants, having—

1. received a complete and special course of training for that service in their colleges, which must have been previously recognized by the Committee of Council as providing such a course; and
2. undergone their probation (Articles 73–6) in infant schools.

100. The annual grant to each college in 1869, consists of 20*l.* or 10*l.* (in the case of females 14*l.* or 7*l.*) for each teacher who, having been trained in it during two years, or during one year conformably to Article 99 (*a*), has, within the five years 1864–8, become qualified, or been reported, as required by Article 98, or 99 (*b*).

101. In 1870, the year 1864 of the five years 1864–8 will be replaced by the year 1869.

102. The annual grant to each college must not exceed—

(*a.*) 75 per cent. of the expenditure, certified in such manner as their Lordships may from time to time see fit to require, of the last preceding year; or such proportionately larger sum as Article 102[7] may allow.

(*b.*) 50*l.* for each male student, and 35*l.* for each female student, in residence respectively, for continuous training throughout the year in which it is being paid.

*102[1]. The number of students in continuous training must not exceed,—

(*a.*) *In England and Wales*, the number of students for whom accommodation was provided in 1862.

(*b.*) *In Scotland*, the actual number in training in 1862.

*102[2]. The sum payable in each year, conformably to Article 102, is ascertained in *January;* and out of this ascertained sum an instalment is paid for students examined in the *preceding December* (Article 119), according to the scale set forth in Article 102[3], as soon as the result of that examination has been declared. The remainder of the said ascertained sum is paid in equal parts on 31 March, 30 June, 30 September, and 31 December.

*102[3]. The instalments payable under Article 102[2] in respect of each student examined are determined according to the following scale:—

At the End of	For Candidate placed by Examination in each Division.	Instalment to be allowed to College (*in the case of Females, Two-thirds of these Sums*).
		£ *s.* *d.*
First year's residence - -	1	20 0 0
	2	16 0 0
	3	13 0 0
	4	13 0 0
Second year's residence - -	1	24 0 0
	2	20 0 0
	3	16 0 0
	4	16 0 0

*102[4]. The payments in respect of students examined in December, as set forth in Article 102[3], are paid although the College may not be re-opened in the following year.

*102[5]. An account is kept from year to year in the following form:—

1. Year.	2. Name of College.	3. Credit balance carried forward from column 9 in last year's account.	4. Value of Certificates under Article 98.	5. Amount of certified Expenditure in year preceding Grant.	6. Maximum Grant payable at 75 per cent. of Expenditure of preceding year.	7. Maximum Grant payable at £ per Student.	8. Grant actually paid, being the sum of columns 3 and 4, provided such sum do not exceed the least of the two sums in columns 6 and 7.	9. Credit balance (if any), being excess of sum of columns 3 and 4 over sum in 8.
		£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*

*102[6].

*102[7]. The amount appearing in column 5 is increased proportionately to any increase in the number of students (Article 107) resident for continuous training (Article 120) throughout the year in which the grant is being paid. The increased number of students must not exceed the maximum defined by Article 102[1].

* Thus numbered in order to preserve (for purposes of reference and quotation) the numbering of such Articles as are not substantially altered.

Section III.

Admission into Normal Schools.

103. A competitive examination of candidates for admission into each normal school is annually held at it in December, by one or more of the inspectors during the week following the examination for certificates (Article 119).

104. The examination extends to the subjects required at the end of a pupil-teacher's apprenticeship (Article 88).

105. The candidates are selected, and admitted to the examination, by the authorities of each normal school on their own responsibility, subject to no other conditions, on the part of the Committee of Council, than that the candidates—

(*a.*) Intend *bonâ fide* to adopt and follow the profession of teacher in schools fulfilling the conditions of Articles 4, 6, and 8, or 94, or 98, *b*;

(*b.*) having been pupil-teachers (Article 81), have successfully completed their apprenticeship; *or*

(*c.*) not having been pupil-teachers (Article 81), are more than 18 years old.

106. All candidates who obtain the minimum number of marks are arranged in two classes in order of merit, irrespectively of their having been pupil-teachers or not.

107. The authorities of each normal school may propose to the Education Department for admission any candidate declared to be admissible pursuant to Article 106.

*108.

109. Before candidates are admitted—

(*a.*) The medical officer of the normal school must certify the state of their health to be satisfactory, and whether they are free from bodily lameness, defect, or deformity; and,

(*b.*) They must sign a declaration signifying their intention conformably to Article 105.

110. The authorities of each College settle their own terms of admission.

111. Upon proof by the authorities of any College that candidates have not fulfilled the conditions set forth in Articles 98–9, contrary to a declaration signed by them on admission into the College, the Committee of Council will refuse to grant teachers' certificates (Article 76) to such candidates, or to admit them to probation for certificates (Articles 73–5).

* 112–118.

Section IV.

Examination of Candidates Admitted into Normal Schools.

119. An examination of the resident students is held in December at the several Colleges in the week preceding the examination for admission (Article 103). The day fixed for the commencement of this examination is printed on the syllabus (Article 70) from year to year.

120. No student may be presented for examination except such as, at the date of their admission, satisfied Article 105, and have been resident throughout the whole year. No such student may be left out.

121. The students have a different examination according as they are males or females, or are at the end of a first or second year of residence.

122. The first year's syllabus for females includes special subjects for the teachers of infants. Candidates who pass in these subjects, and complete their probation (Articles 73–6) in schools for infants, receive special mention thereof (*stamp*) on their certificates.

* 123, 124.

125. At the end of the first year's residence, students who fall into the fourth division (Article 102[3]), are required to take up the first year's subjects again (viz., at the end of the second year), but in such cases the instalments to the College, and the certificates which the students may obtain as teachers (Article 76), are respectively at the rate (Article 102[3]) and in the form (Article 130) of the first year.

126. The principal is at liberty, by notice in writing to the Committee of Council before 30th June in each year, to designate any student who may have appeared in the third division at the end of the previous (first) year's residence, as proper to be examined again upon the same terms as the students included in the fourth division; but such designation on the part of the principal does not affect the privileges attached to the student's rank in the previous examination.

* 127.

* Retained, in order to preserve (for purposes of reference and quotation) the numbering of those articles which are not substantially altered.

Section V.

Use made of Examinations in Normal Schools for awarding Teachers' Certificates.

128. Teachers qualified to be examined for certificates, according to Articles 68, 71, and 72, receive notice to attend the examination held pursuant to Article 119.

129. Teachers attending examinations pursuant to Article 128 may, at their option, take the papers of the first or second years' students (Article 121).

130. No candidate (Article 72) can obtain a teacher's certificate without passing one of these examinations, but the order of the candidates according to examination, except the fourth division (Article 131), is honorary (Articles 67 and 69).

Students who pass successfully through two years of training in normal schools receive special mention thereof (*stamp*) on their certificates.

131. Candidates (whether students or acting teachers), who are placed by examination in the fourth division (Article 102[3]), receive their certificates in the lower grade of the fourth class (Article 67). Such teachers are not recognized, under Article 81*a*, for the superintendence of pupil-teachers until they have risen to a higher certificate either by re-examination (Article 78), or good service (Articles 76–7).

*131[1]. All teachers at present *registered as competent to instruct pupil-teachers* are included in the fourth class, upper grade, of certificated teachers; all *other registered teachers*, and all *scheduled students acting as teachers*, are included in the fourth class, lower grade.

PART III.

SPECIAL PROVISIONS.

Section I.

Small Rural Schools.

132. Pupil-teachers who fulfil the conditions of Article 90, may, upon special recommendation by the Inspector, and upon consideration of their last examination papers, be provisionally certified in the lower grade of the fourth class (Article 131) for immediate service in charge of small rural schools (Article 133), but after their 25th year of age (completed) their provisional certificates must have been exchanged for permanent certificates (Article 66), or are *ipso facto* cancelled.

*132[1]. The provisional certificate (Article 132) is confined to an entry of the pupil teacher's name in a register kept by the Committee of Council on Education, and does not involve the issue of any certificate to the pupil-teacher.

133. Small rural schools—

(*a*) Must not contain more than 1,200 square feet of superficial area in the whole of the school-rooms and class-rooms; or

(*b*) Must not have an annual average attendance of more than 100 scholars.

134. (The Article formerly 134 is now 131[1], which see above.) Schools having an average annual attendance of more than 89 scholars are not exempted by Article 133 from Article 52, *b*.

135. Any number of schools fulfilling the conditions of Articles 4, 6, and 8,

(*a*) Not being less than *two*, nor more than *six*;
(*b*) Of which no one has within *one and a half* miles of it, a population of more than *five hundred*;
(*c*) Of which the aggregate number of scholars is not less than *forty* (annual average); and
(*d*) Of which each has its own resident teacher;—

may be united under the superintendence of one certificated master or mistress, who must spend *two* clear hours at the least in each week at each school during its ordinary time of meeting, or, if the number of united schools be less than *six*, such longer time per week as *twelve* hours divided among the united schools will give to each.

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* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of articles not substantially altered.

136. The resident teacher of each of the united schools is not required to be certificated.

137. The superintending teacher must have been trained for two years in a Normal School (Article 94) under Government inspection, must have been placed not lower than the third division in the examination (Articles 119–121) at the end of the second year, and must have received a certificate after the usual probationary service (Articles 73 and 76).

138. The day scholars of all the united schools must be assembled once per annum, with their resident and superintending teachers, at some school-room under inspection, for examination by one of Her Majesty's inspectors, in the same manner as if they formed one school (Articles 16, 17).

*138[1]. The resident teachers (Article 135 *d*) must bring with them (Article 138) their school registers, their log-books (Article 140), and the examination schedules, duly filled up and signed, of their several schools.

*138[2]. Children under six years of age, who are qualified by attendance for the grant under Article 40, *b*, 2, must be entered in the schedules, but they need not appear in person at this examination, but will be inspected at their several schools (Article 140).

Children (of whatever age), who have not attended often enough (200 times) to be entered in the schedules, need not appear at this examination, but will be inspected at their several schools (Article 140).

139. The whole of the united schools must be represented by one official correspondent, and by one treasurer for the receipt of annual grants (Article 40).

140. The inspector, before or after examining (Article 138) the children, visits the several schools and makes a special report upon each of them. If he reports (*inter alia*) that Article 40, *b*, 2 is not satisfied in regard to the infants (Article *138[2]), the grant for them in that school is withheld.

141. Articles 38–63[1], 74[1], and 79 apply, in all respects not specially excepted, to each united school, but

(*a*.) pupil-teachers cannot be apprenticed (Article 81) in them (Article 136); and
(*b*.) the superintending (Article 137) as well as the resident (Article 135 *d*) teacher must join in keeping the log-book (Articles 56–63[1]) of each united school.

Section II.

Evening Scholars.

142. The managers of any school to which annual inspection has already been promised (Article 16) may apply in writing to the Committee of Council on Education, to be furnished with printed papers and instructions for holding an examination of their evening scholars (Articles 38, 39).

*142[1]. Only one examination per annum of evening scholars is held in the same school, and it may be held at any time of the year, provided that, between any two of such examinations, there intervene—

(*a*) the inspector's annual visit (Article 17); and also
(*b*) forty, or more, meetings of the school in the evening (Article 40*a*).

143. The applicants must pledge themselves that (exclusively of all teachers of the candidates) at least two managers—or, if only one manager, then such manager, and at least one other responsible person—shall be present during the whole of the examination, and shall conduct it in every respect according to the instructions accompanying the examination papers.

144. The examination papers are sent under an official seal, and must not be unsealed except in the examination room, and in the presence of the candidates immediately about to use them.

145. The written exercises, all of which must be upon paper, having been securely sealed up in the presence of the candidates before leaving the examination room, under the seals of the two persons holding the examination, must be forwarded, by the next post, to the Education Department, and transmitted thence to the inspector of the School.

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* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of articles not substantially altered.

146. The exercises of the evening scholars transmitted to the inspector are not returned by him to the Committee of Council except as part of his next annual report on the whole school (Article 16), and the grant for the examination of the evening scholars is not paid except as part of the next annual grant to the whole school (Article 17).

†147.

148. In order to ensure the presence of a responsible manager to receive the examination papers, the managers of each school, in which a special examination of evening scholars is to be held, must renew their application (Article 142) every year to the Committee of Council. The day fixed for the examination must allow the interval required by Article *142[1].

149. The inspector of the school is at liberty to attend, without notice, at the time fixed for the examination (Article 142), and to hold it in person.

CHAPTER III.

REVISION OF CODE.

150. The Committee of Council on Education, in the course of each year, as occasion requires, may cancel or modify articles of the Code, or may establish new articles, but may not take any action thereon until the same shall have been submitted to Parliament, and laid on the Table of both Houses for at least one calendar month.

151. In January of each year the Code shall be printed in such a form as to show separately all articles cancelled or modified, and all new articles, since the last edition, and shall be laid on the Table of both Houses within one calendar month from the meeting of Parliament.

(Signed) de GREY AND RIPON,
Lord President of the Council.

WILLIAM EDWARD FORSTER,
Vice-President of the Committee of Council on Education.

Council Office, 31 January 1869.

* Thus numbered, in order to preserve (for purposes of reference and quotation) the numbering of articles not substantially altered.

† Retained, in order to preserve (for purposes of reference and quotation) the numbering of those articles which are not substantially altered.

Appendix I.

Showing separately (for 1869) all Articles cancelled or modified, and all new Articles.

Articles in the Code of 1868 which are cancelled or modified in the Code of 1869.	New Articles in the Code of 1869.
46.* Every scholar for whom the grants dependent upon examination are claimed (Article 40, *b* 1, and *c*,) must either— (*a.*) Be examined according to one of the following standards (Article 48), and, except evening scholars, not be presented for examination a second time according to the same or a lower standard;* or (*b.*) After having been presented for examination in Standard VI. must satisfy the inspector in some specific subject of secular instruction, provided for in the time tables of the school in use throughout the past year (Article 17), beyond Standard VI.	46. Every scholar for whom the grants dependent upon examination are paid (Article 40, *b* 1, and *c*,) must satisfy the inspector either— (*a.*) According to one of the following standards (Article 48); or (*b.*) In some specific subject of secular instruction, provided for in the time tables of the school in use throughout the past year (Article 17), beyond Standard VI. 46[1]. No scholar attending in the morning or afternoon may be presented a second time for examination— (*a.*) Under the same or a lower standard (Article 46, *a*); nor (*b.*) Beyond Standard VI (Article 46, *b*).† 46[2]. Articles 46, *b*, § and 46[1], *a*, do not apply to evening scholars.
51. (*d.*) If the registers and accounts be not kept with sufficient accuracy to warrant confidence in the returns.	51. (*d.*) If the registers, accounts, and certificates (Articles 79 and 88, *columns* 2–3) ‖ do not warrant confidence.
54. (*a.*) The number of teachers must have allowed, throughout the past year (Article 17), at least one certificated or one assistant teacher, fulfilling respectively the conditions of Articles 67 and 91–3, for every 80 scholars, or one pupil-teacher fulfilling the conditions of Articles 81–9 for every 40 scholars, after the first 25 of the average number of scholars in attendance.	54. (*a.*) The number of teachers must have allowed, throughout the past year (Article 17), for every 40 or 80, after the first 25, of the average number of scholars in attendance, either one pupil-teacher fulfilling the conditions of Articles 81–9 for every such 40 scholars, or one certificated or assistant teacher fulfilling the conditions of Articles 67 and 91–3 for every such 80 scholars.¶
80. The inspector must annually report whether the teacher's school is efficient in organization, discipline, and instruction.	74[1]. The inspector reports of each school visited by him whether it is efficient in organization, discipline, and instruction.* 80.** 88, *column* 10.§§ To teach a junior class to the satisfaction of the inspector. To give a class a reading lesson, and to examine it on the meaning of what has been read. To examine a class in the rudiments of grammar and arithmetic, and during the examination to keep the class attentive, in order, and in activity, without undue noise. To manage and examine the second class in grammar, geography, and mental arithmetic. To manage and examine the first class in grammar, geography, and mental arithmetic, and to give a lesson to two or three classes grouped together. To give a gallery lesson, and to conduct the instruction of the first class in any subject selected by the inspector.

* This article has been subdivided in order to make its meaning more clear.

† Gives effect, omitted in edition of Code 1868, to the words, *for one year*, in paragraph II. of the Minute of 20 February 1867. See *Report of the Committee of Council*, 1866-7, p. xcix.

§ Omission in edition of Code 1868 supplied. See *Report of the Committee of Council*, 1866-7, p. ciii.

‖ Change confined to making clear the effect of these articles.

¶ Change confined to using the same form of words as in Article 52, *b*.

* In substance Article 80, transferred to context where its connexion with other articles is clearer.

** See note *.

§§ Omission supplied. See *Report of the Committee of Council*, 1846, vol. i. pp. 4–6. Article 88 in former editions of the Revised Code, and the corresponding Article 124 in the Code of 1860, are confined to the literary qualifications of pupil-teachers. In transferring the tabulation of part of the Minutes of 1846 from p. 23 of the Report of the Committee of Council, 1857-8, to the Code of 1860, the line at the top [*inspector will report every year on the progress of the pupil-teacher in the art of teaching*] appears to have been accidentally cut off. The inspectors, however, have continued to report as before upon the practical skill of the pupil-teachers, under a special heading for that purpose in their forms of report, and the omission in the Codes was not noticed before 1868.

Articles in the Code of 1868 which are cancelled or modified in the Code of 1869.

100. The annual grant to each college in 1868, consists of 20*l.* or 10*l.* (in the case of females 14*l.* or 7*l.*) for each teacher who, having been trained in it during two years, or during one year conformably to Article 99 (*a*), has, within the five years 1863–7, become qualified, or been reported, as required by Article 98, or 99 (*b*).

101. In 1869, the year 1863 of the five years 1863–7 will be replaced by the year 1868.

102[5]. An account is kept from year to year in the following form :—

1. Year.	2. Name of College.	3. Value of Certificates under Article 98.	4. Amount of certified Expenditure in preceding Year Grant.	5. Maximum Grant as per Column 3 payable: at 75 per cent. of Expenditure of preceding Year.	6. Maximum Grant as per Column 3 payable: at £ per Student.	7. Grant actually paid.	8. Deficiency under Article 98 to cover Maximum Grant payable.	9. Excess under Article 98 over Maximum Grant payable.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.

102[6]. All sums appearing in column 9 are applied to the payment of the sums appearing in column 8.

105. The candidates are selected, and admitted to the examination, by the authorities of each normal school on their own responsibility, subject to no other conditions than that the candidates—

105. (*b.*) having been pupil-teachers have successfully completed their apprenticeship; *or*

105. (*c.*) not having been pupil-teachers are more than 18 years old.

141. Articles 38–63[1] apply, in all respects not specially excepted, to each united school, but

Supplementary Rule 12.—Attendance at a morning or afternoon meeting may not be reckoned for any scholar who has been under instruction *less than two hours*, nor attendance at an evening meeting for any scholar who has been under instruction *less than one hour and a half* (Article 41). The Class Registers at each meeting of a school *must be marked and finally closed before* the minimum time constituting an attendance *begins*. The inspector will inquire whether this rule has been observed (Article 51, *d*).

New Articles in the Code of 1869.

100. The annual grant to each college in 1869, consists of 20*l.* or 10*l.* (in the case of females 14*l.* or 7*l.*) for each teacher who, having been trained in it during two years, or during one year conformably to Article 99 (*a*), has, within the five years 1864–8, become qualified, or been reported, as required by Article 98, or 99 (*b*).

101. In 1870, the year 1864 of the five years 1864–8 will be replaced by the year 1869.

102[5]. An account is kept from year to year in the following form :—

1. Year.	2. Name of College.	3.* Credit balance carried forward from column 9 in last year's account.	4. Value of Certificates under Article 98.	5. Amount of certified Expenditure in preceding Year Grant.	6. Maximum Grant payable*: at 75 per cent. of Expenditure of preceding Year.	7. Maximum Grant payable*: at £ per Student.	8.* Grant actually paid, being the sum of columns 3 and 4, provided such sum do not exceed the least of the two sums in columns 6 and 7.	9.* Credit balance (if any), being excess of sum of columns 3 and 4 over sum in 8.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.

102[6].

105. The candidates are selected, and admitted to the examination, by the authorities of each normal school on their own responsibility, subject to no other conditions, on the part of the Committee of Council,* than that the candidates—

105. (*b.*) having been pupil-teachers (Article 81)* have successfully completed their apprenticeship; *or*

105. (*c.*) not having been pupil-teachers (Article 81)* are more than 18 years old.

141. Articles 38–63[1], 74[1], and 79* apply, in all respects not specially excepted, to each united school, but

Supplementary Rule 12.—Attendance at a morning or afternoon meeting may not be reckoned for any scholar who has been under instruction *less than two hours*, nor attendance at an evening meeting for any scholar who has been under instruction *less than one hour and a half* (Article 41). The Class Registers at each meeting of a school *must be marked and finally closed before* the minimum time constituting an attendance *begins*.

If any child, entered in the register as attending, is withdrawn from school before the time constituting an attendance is complete,§ a note must be made at the time by the class teacher (*e.g.* on a slate, or on the black-board), but the register must not be re-opened for correction before the dismissal of the school. The best mode of correction is, not to cancel the entry, but to write —1 (*minus* one) in the column of the Class Register for "Remarks," referring by a note (*) to the proper square.

The inspector will inquire whether these rules have been observed (Article 51, *d*).

* Change confined to making plain the meaning.
† Incorporated with Article 102[5].
§ *Casus omissus* under Rule as it stood.

Appendix II.

Supplementary Rules.

A copy of the following Supplementary Rules is sent to the correspondent of the School by the Inspector at the same time as notice of his visit (Article 16).

Rule 1.—In column II. of the Examination Schedule the names of the qualified scholars must be entered class by class, *beginning* with the *lowest* scholar in the *lowest* class.

Rule 2.—The entries in column VII. must show where one *class* ends and another begins. The number denoting each *Class* is to be written only *once;* dots (" ") are to be put for each repetition of it, until the next higher class begins. There must be no intermixture of classes.

Rule 3.—The entries in column VIII *b.* will show where one *standard* ends and another begins. The number denoting each *standard* is to be written only once; dots (" ") are to be put for each repetition of it until the next higher standard begins. There must be no intermixture of standards.*

Rule 4.—The end of each standard in column VIII *b.* *need not* (although, of course, it *may*) coincide with the end of each class in column VII.* Compare the entries opposite to No. 6 who ends a *class*, but not a *standard;* No. 8 who ends a *standard* but not a *class;* No. 16 who ends *both* a class *and* a standard (this is preferable).

Rule 5.—The managers need not present all the scholars who in each class are qualified for examination by number of attendances; but those whom they present at all must be presented in the classes to which the school registers prove them to belong, unless they fall as "*Exceptions*" under Rule 6.

Rule 6.—The children who, for whatever reason, are presented under a lower standard than that which an examination of the school according to the above rules assigns to their class, must be entered *last* in the schedule under the title of "*Exceptions,*" otherwise they will violate Rule 2 or 3. No child is to be placed among the "*Exceptions*" unless there is some special *excuse* for doing so, such as previous *illness*, &c. Primâ facie, every child who is not fit to be *examined* in its own class has been wrongly placed there *for instruction.*

Rule 7.—The Inspector is directed to refuse to examine Schools *wherein Rule 2 or 3 is violated.* He will in such cases proceed to inspect the School, and will report to the Committee of Council why he has left column IX. (*his Report on each candidate*) in the Examination Schedule blank.

Rule 8.—No grant will be paid to a School (not being one for Evening Scholars or Infants only) unless one *class* —*i.e.* all who are to be examined as members of one class according to Rule 5—be presented *at least as high* as Standard III.

Rule 9.—A deduction of at least one-tenth will be made from the grant to a School (not being one for Evening Scholars or Infants only) unless one *class*—*i.e.* all who are to be examined as members of one class, according to Rule 5—be presented *above* Standard III.

Rule 10.—Entries in column VI. have reference to Article 4 in the Revised Code, and do not exclude children from the grant whose parents, though not supporting themselves by their own manual labour, yet are of the same means and social level as those who do so; such as shopkeepers who have only petty stocks, and employ no one but members of their own family.

The occupation of *all* parents who do *not* support themselves by their own manual labour must be entered in column VI.

A well marked line (*see* No. 12 in specimen Schedule)* may be drawn under all entries in column VI., which are thought to be fairly within the meaning of Article 4.

A separate list of the names against which these underlined entries are made, with a brief statement of the reasons which have induced the managers to underline them, must be filed with the examination Schedule, and handed to the inspector on the day of his visit.

In determining whether the line may be drawn under the several entries or not, cases of doubt may be resolved according to the answers to one or more of the following inquiries:—

(*a.*) Does A.B. work for himself, or for a master? if for himself, does he employ apprentices or journeymen? This will apply to masons, carpenters, tailors, blacksmiths, mariners, fishermen, &c.

The class denoted by Article 4 supports itself by its own manual labour only, and not by profit on the labour of others.

(*b.*) Would it be unreasonable to expect him to pay 9*d.* per week for the schooling of each of his children? This payment equals about 30*s.* per annum, the

* In the following transcript of part of the Examination Schedule, Columns II., VII., and VIII*b.*, are filled up, *by way of example*, according to Rules 2 and 3. Of course, the other columns must not, *in practice*, be left blank; and the actual numbers, presented in each class, will generally be much larger.

I.	II.	III.	IV.		V.	VI.	VII.	VIII*a.*	VIII*b.*
Number.	Name.	Age (on next Birthday).	Date of Admission to this School. Year.	Date of Admission to this School. Month.	Number of Attendances † in the Year.	Occupation of Parent. Leave blank if the Parent supports himself by his own Manual Labour. *In other cases, make an entry.*	In what Class of School; *first* means *highest.*	Under what Standard LAST examined, enter I., II., III., &c., as case may require.	Under what Standard NOW to be examined, enter I., II., III., &c., as case may require.
1	John Jones						4th		I.
2	Thomas Peters						"		"
3	Henry Brown						"		"
4	Wm. Robinson						"		"
5	Thomas Davies						"		"
6	Robert Finch	..	..	..	..	.. ..	"	..	"
7	Luke Williams						3rd		"
8	Simon Hunt	..	..	..	..	.. ..	"	..	"
9	James Short						"	I.	II.
10	Richard Rogers						"		"
11	Samuel Grant						2nd		"
12	John Styles	..	..	..	..	Huckster‡	"		"
13	Henry Pigot						"	II.	III.
14	Silas Wills						"		"
15	John Miller						"		"
16	Peter Downes	..	..	..	..	.. ..	"	..	"
17	Charles Potts						1st	III	IV.

† See Rule 12.

‡ See Rule 10.

estimated cost (Royal Commissioners Report, page 345) of elementary instruction in a day school.

(*c.*) Does he rank, and associate with, the working men, or with the tradesmen of the place?

Simple policemen, coastguards, and dock and railway porters, may commonly be regarded as labouring men. But petty officers in those services, excisemen, pilots, and clerks of various kinds, present more difficulty, and must be judged of according to the answers to the preceding inquiries.

RULE 11.—*To find the average number of scholars in attendance at a school for any period,* ADD TOGETHER the total number of attendances (see Rule 12) marked in the Class Registers within the period, and DIVIDE the sum BY the number of times which the school has been open within the same period; THE QUOTIENT is the average number in attendance.

This calculation should be made first, for *the whole* school, and then *separately* for those scholars only who do *not* fulfil Article 4. See Rule 10, *suprà*. The *divisor* will be the same in both cases.

RULE 12.—Attendance at a morning or afternoon meeting may not be reckoned for any scholar who has been under instruction *less than two hours,* nor attendance at an evening meeting for any scholar who has been under instruction *less than one hour and a half* (Article 41). The Class Registers at each meeting of a school *must be marked and finally closed before* the minimum time constituting an attendance *begins.*

If any child, entered in the Register as attending, is withdrawn from school before the time constituting an attendance is complete, a note must be made at the time by the class teacher (*e.g.* on a slate, or on the black-board), but the Register must not be opened for correction before the dismissal of the school. The best mode of correction is not to cancel the entry, but to write −1 (*minus* one) in the column of the Class Register for "Remarks," referring by a note (*) to the square.

The inspector will inquire whether these rules have been observed (Article 51, *d*).

RULE 13.—No child's name should be kept on the Admission Register after a fortnight's continuous absence without inquiry from the parents *whether the child has been withdrawn.* The names of children withdrawn (*whether they are so, the answer of their parents will decide*) should be cancelled at once in the Registers, and not included in the returns of *age* and *stay at school;* but the attendances (if any) opposite to such names in the Class Registers, must be counted under Rule 11., *suprà,* and the whole number of such names must be counted for the return "left in past year."

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For Her Majesty's Stationery Office.

HOMERTON CONGREGATIONAL SCHOOLS.

RETURN to an Address of the Honourable The House of Commons, dated 4 March 1869;—*for*,

"COPY of the PRELIMINARY REPORT by Her Majesty's Inspector, *Matthew Arnold*, Esquire, on the NORMAL and PRACTISING SCHOOLS of the CONGREGATIONAL BOARD of EDUCATION at *Homerton*."

REPORT by Her Majesty's Inspector, *Matthew Arnold*, Esquire, on the NORMAL and PRACTISING SCHOOLS of the CONGREGATIONAL BOARD of EDUCATION at *Homerton*.

Sir, London, October 1868.

IN compliance with the Lord President's directions, I visited, at the beginning of this month, the Training College and Practising Schools at Homerton belonging to the Congregational Board of Education.

I was directed to report whether the college and its practising schools seemed to me, after inspecting them, an institution which the Committee of Council might now fairly begin to aid; and particularly whether the past management of the institution appeared to have been sufficiently good to warrant the Committee of Council in admitting to examination the former students of Homerton College, without requiring the two previous inspections to which they would, in strictness, have to submit.

It was in June last that the Congregational Board unanimously resolved to apply to the Committee of Council for admission of the Training College at Homerton, and of the elementary schools of Congregationalists, to a share in the Parliamentary Grant. But, before this, there had been a period of much uncertainty as to the course to be followed by the Board, and as to the future prospects of the Homerton College. During this uncertainty the admission of fresh students naturally ceased; and, since the Board came to its decision, sufficient time has not passed for a body of fresh students to form itself, and to appear in definite working order. The present state of the training department, therefore, affords no standard by which to judge the college, either as it was while it proceeded regularly upon its old footing, or as it probably will be when it shall have definitively established itself upon its new one. Dr. Unwin, the principal, has shown the greatest possible willingness in furnishing me with all information for which I asked; but the forms in which training colleges, already in the regular receipt of grants, are required to exhibit the account of their income and expenditure, cannot well this year be filled up for the Homerton College. But, nevertheless, amply sufficient data are afforded to enable me to form an opinion upon the points to which the instructions of the Lord President have, on the present occasion, immediately directed me. I will preface that opinion with a very short account of the Homerton College, and of its promoters.

The college belongs, as I have said, to the Congregational Board of Education. This Board was formed in 1843, "to promote popular education, par- "taking of a religious character, and under no circumstances receiving aid from "public money administered by Government." These are the words of the first of the 12 rules by which, up to the present year, the operations of the Board were governed.

The sixth of those rules lays down as follows the chief objects for which the Board was constituted :—

"1. The establishment of normal schools for training male and female teachers for day and infant schools.

"2. The inspection of day schools in connection with the Congregational body.

"3. The collection of educational statistics respecting Congregational day, Sabbath, and infant schools.

"4. The establishment or aiding of schools by grants of money, books, or otherwise.

"5. The recommendation of the most approved books for schools, and, if necessary and practicable, the compilation of such as may be desirable.

"6. The advancement of popular education by public meetings, deputations, the press, and by any other means approved by the Board."

The seventh, eighth, ninth, and tenth rules relate to the religious character of the college and schools in connection with the Board, and to the religious instruction given in them. It is provided that no candidate shall be eligible for admission to the college who is not in communion with some Christian church, or whose Christian character is not otherwise well attested. The Board, though constituted to act denominationally as a *Congregational* Board, professes to "entertain the most cordial consideration for all other Evangelical denomina-"tions who may be willing to co-operate with it in friendly emulation for the "public service," and (so the rule, as it originally stood, went on) which, "rejecting Government aid," will co-operate also with it "to present a firm and "general resistance to State interference in educational matters." The ninth rule sets forth that "the education given in schools connected with the Board "shall be conducted on Evangelical views of religion"; but that "neither the "learning of any denominational formulary nor attendance on any particular "place of worship shall be a condition of admittance into them"; and the 10th rule adds that "all schools in which the religious teaching is Evangelical, "although not entirely Congregational in their management, shall be eligible "for union with the Board." This rule originally stipulated that such schools, besides offering the above-mentioned religious character, should "receive no aid "from the State."

Finally, the rules provide, as a fundamental regulation, "that all arrangements "as to the substance and manner of teaching, with the whole of the internal "government of schools, shall be in the hands of the local committee."

The course of events, to which no wise man will obstinately refuse to adapt his own course, led to the resolution of last spring, by which the Board and its constituency determined to refuse no longer the aid of the State to their schools, an aid which involves no interference of any kind whatever with the religious instruction given in them. All provisions as to the rejection of State aid have now, therefore, disappeared from the rules. What remains, and what the Committee of Council has to do with, is a system of schools with a conscience clause, and with a denominational character; their denomination being properly *Evangelical*. They are unlike the Church of England schools, or the Wesleyan schools, in that they are not merely for Anglicans, or for Wesleyans, but for those who hold "Evangelical views of religion." They are unlike the schools of the British and Foreign School Society, because, being for those who hold "Evangelical views of religion," they exclude Socinians and Roman Catholics. The distinction is remarkable, because the denomination thus, in fact, adopted is identical with the denomination common to all the State-aided Protestant schools of Germany, and under which all bodies of Protestant Christians in that country unite. State-aided schools in Germany are divided into Evangelical schools and Catholic schools; and, in my opinion, this is the very best division which can be adopted, recognising essential differences and effacing non-essential; and it is, I think, one which, though it might be distasteful to certain parties and individuals, would on the whole recommend itself, if it could be followed, to the feelings and judgment of the people of this country. It is true, Germany has in Luther's Short Catechism a formulary which all Evangelical bodies agree to unite in using, and this is a great advantage. For want of some formulary of this kind the religious teaching of Congregational schools has to depend on the Bible

Bible gallery lesson ; and it may well be thought that too much is thus left to the individual teacher. Still in seizing this notion of Evangelical Protestantism as the basis of the religious character of their schools, and in guarding this, so far as they could, from being a mere unreal colourless thing, made up of vague generalities,* the Congregational Board have had the merit of conceiving a type of popular school better suited, probably, to be the public school of the bulk of the people of this country than either the so-called National school or the Wesleyan school on the one hand, or than the British school, or still more than the secular school, on the other; and their conception has in it, in my opinon, elements of utility which may well bear fruit in the future.

In 1843, 165,000 *l.* was raised for building and maintaining schools in connection with the Congregational Board, in addition to the sums raised locally on behalf of individual schools. In 1852 Homerton College was bought, and adapted to the purpose of a training institution for male and female teachers ; on this, 11,622 *l.* was spent. Model and practising schools were also established in connection with the college. The Board has trained 665 teachers for juvenile and infant schools ; has inspected its schools, and aided those in poor districts, and has provided a depository for the supply of school books and school materials.

The Homerton College is unencumbered with debt, and at the end of the year ending 31st March 1868, there was in the hands of the treasurer a balance in favour of the institution.

The students who have been trained in the college have paid 15 *l.* a year for their board, lodging, and tuition,† and have besides bought their own books, and borne the cost of whatever medical attendance they required.

The income of the model and practising schools for the year ending 31st March 1868, has been 508 *l.* 5 *s.* 8 *d.*, which, with 102 *l.* 16 *s.* 4 *d.* received for books and school materials, makes a total of 611 *l.* 2 *s.*

The buildings and accommodations of the training college seem to me excellent, and the comfort of the students is well cared for. I enclose a copy of the dietary.‡ The course of study, of which I also enclose a copy,§ does not in any important particular differ from that followed in other training schools. The text-books in use in the college and schools of the Board seem to me to be at least equal to those in use elsewhere, and the Homerton College Atlas appears to me so good that I could wish to see other schools adopt it.

Dr. Unwin, the principal, has been connected with the Congregational Board and its labours ever since 1848. At first the whole of the teaching, with the exception of the instruction in vocal music and drawing, devolved upon him, as well as the arrangements for supplying schools with teachers. After the second year assistance in the teaching department was provided for him. I heard lectures given both by him and by Mr. Liddell, who assists him. I also heard a criticism lesson given by the master of one of the practising schools, who acts as master of method. There can be no doubt of the capacity and skill of the teaching staff of the college ; but the students whom I saw were so few in number, and had been so short a time under training (being for the most part a preparatory class fitting themselves to try for admission at Christmas next), that they and their instruction afford no real test for ascertaining what has been accomplished by Homerton and its training. What Homerton has accomplished, and the real and great influence exercised by its principal, Dr. Unwin, is much better shown by the practising schools in connection with the college. Four of these schools, well built and fitted in all respects, immediately adjoin the college. I found 424 children present in them, besides 139 more in some other practising schools in Homerton Row, not far off. All the teachers in these schools were trained at Homerton ; and two of the four schools immediately adjoining the college (the juvenile boys' school and the juvenile girls' school) are as good specimens of elementary schools as are to be found, perhaps, anywhere

* "The character of the teaching ought not to be so general as not to involve the distinctive truths of revelation. No satisfaction can be afforded by vague generalities. To practise reserve as to what is vital in Christianity is to give the children a stone when they ask for bread."—*Inaugural Discourse*, by the Rev. Dr. Unwin, Principal of Homerton College.

† These terms remain the same for teachers destined for voluntary schools ; for those destined for State-aided schools the fee is now the entrance fee of 3 *l.* on admission, and no more.

‡ Marked A., annexed.

§ Marked B., annexed.

anywhere in this country. These practising schools and their teachers, with what I know of other schools elsewhere, under teachers similarly trained, appear to me to afford such a testimony to the Homerton training as to enable me, without hesitation, to say that the Committee of Council is warranted in admitting at once to examination the former students of the college; and that it is for the interest of public education that this institution and the schools connected with it should share in the Parliamentary Grant, and should come to co-operate directly in the national work which, by the help of that grant, is being carried on.

I have, &c.

To the Secretary,
Committee of Council on Education.

(signed) *Matthew Arnold.*

Date, October 5th, 1868.

RETURNS from the Congregational Board of Education Normal School for Masters and Mistresses, for the Year ending Christmas 1868.

I. Officers.

No.	Names.	Degrees.	Duties.	Annual Salary.	Is Board allowed in addition to the Salary?	Is a House or Rooms allowed in addition to the Salary?	Does the Officer reside within the Walls of the Institution?
				£.			
1	William J. Unwin	M.A., LL.D., Glasgow University.	Principal	400	No	Rooms	Yes.
2	Edward Liddell*	-	Mathematical Tutor	200	No	No	No.
3	Theodosia Towers	-	Superintendent of the Female Department.	60	Yes	Rooms	Yes.
4	Otto Neff	-	Teacher of vocal music and gymnastics; general superintendence.	20	Yes	Rooms	Yes.
5	John Brown	-	Teacher of drawing	30	No	No	No.
6	James T. Powell	Teacher of Juvenile Boys' School.	Criticism lessons	130	No	No	—
7	Martha Rose	Teacher of Juvenile Girls' School.	Ditto	30	Yes	Rooms	Yes.

* Mr. Liddell holds an appointment of Lecturer on Mathematics and Physics at the Theological Seminary, Well Street, Hackney.

II. Distribution of Time.

Text-books.

Arithmetic, Algebra, and Trigonometry.—Barnard Smith's Arithmetic for Schools. Liddell's Arithmetic. Todhunter's Algebra for Beginners. Todhunter's Trigonometry for Beginners.

Geometry.—Potts' Euclid.

Geography.—Mackay's Elements of Modern Geography. Unwin's Descriptive Geography of the World, and Political Geography of the British Isles. Page's Physical Geography. Homerton College Atlas, Physical, Hydrographical, and Political.

English History.—Smith's Smaller History of England.

English Language.—Unwin's English Grammar. Mason's English Grammar. Ogilvie's English Dictionary for Schools.

Penmanship.—Mulhauser's Manual of Writing.

Book-keeping.—Hamilton and Ball's Book-keeping.

Domestic Economy.—Tegetmeier's Domestic Economy.

Vocal Music.—Training School Singing Method by J. R. Weber. Training School Part Songs. Homerton College Hymnal. Currie's Musical Analysis.

Drawing.

Drawing.—Brown's Hints on Drawing. Binn's Orthographic Projection. Burchett's Practical Geometry.

Method.—Currie's Early and Infant School Education. Currie's Principles of Common School Education. Unwin's Primary School.

IV. Accommodation and Numbers.

1. Number of students which the building is at this time capable of accommodating (include unfurnished dormitories, if any), 50.

2. Number of furnished dormitories 15 (exclusive of teachers' rooms).
Five female and one male student in preparatory class.
Three voluntary students.

5th October 1868. (signed) *William J. Unwin,* Principal.

A.—Homeron College. Dietary.

Meat.—Only one kind of meat on the table at the same time usually. Veal, pork; meat pies occasionally.

Vegetables.—Potatoes, greens, carrots, lettuce; alone or together.

Sunday.—Cold beef, roast and boiled alternately; fruit pies, plum puddings, or jam tarts.

Monday.—Boiled and roast mutton, hot alternately; baked rice puddings.

Tuesday.—Boiled and roast mutton, cold; soup, October to May; fruit puddings, June to September.

Wednesday.—Hot roast beef, plain puddings.

Thursday.—Roast mutton, hot in winter, but generally cold in summer; boiled rice with sweet sauce, fruit or jam.

Friday.—Cold roast beef or mutton; plum puddings, baked or boiled.

Saturday.—Roast and boiled beef, hot alternately; baked rice puddings.

B.—Homerton College. Course of Instruction.

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General Arrangements.

1. All students are required to assemble at 6.30 a. m. in the class-rooms of the wing. Attendance is to be registered, and the record of attendance is to be given to the principal every Saturday morning.

2. The students are to be in their class-rooms at the times specified on the time table. Attendance at 7 a. m. is to be registered.

3. Exercises to be prepared in study hours are to be completed at the times specified, and given in at the opening of the class fixed for their delivery. Special exercises are to be collected by the censor, and given to the principal.

4. The printed rules of the institution, of which each student has a copy, regulate the details of management.

5. Fines are not levied except when property is injured or destroyed. Students are expected to exercise a kind superintendence over each other in the maintenance of a proper discipline, and not to hesitate as to their duty in reporting to the principal any case of moral delinquency. Espionage is avoided, but the principal expects a truthful answer to any question he may deem it right to put, any refusal to be referred to the Board.

SPELLING.

1. Spelling by dictation.

Books used:—

a. Spelling by Dictation, by Rev. A. J. D. D'Orsey.

b. Prose and Poetical Lessons in Training School Reader.

c. Special Lessons on Subjects related to General Instruction and Methods of Teaching.

2. Mode of giving the lesson.

a. The lesson to be read through once.

b. The portion to be written to be read only once, a few words at a time, the construction of words in a sentence to be preserved.

3. Correction of the exercise.

a. The teacher to correct each exercise.

b. Errors to be marked thus, in red ink:

a. Mis-spelling by numerals written through the words, as *dec* 1 *et.*

b. Omissions by a caret ^ .

c. Incorrect punctuation by a vertical line | .

d. Mistakes in grammar by a cross ×.

e. Mistakes in the use of capitals by a double vertical line ‖ .

c. The errors in spelling to form the numerator of a fraction, of which the sum of all other errors forms the denominator.

4. Reversion of the exercise.

1. The student to write above errors in spelling the correct forms.

2. When errors in spelling amount to 15, the words as corrected are to be transferred to the last page of the book, each word to be repeated till one line is filled, thus:

Monstrous, monstrous, monstrous, monstrous, monstrous.

3. Mis-spelled words to be orally spelt, and the cause of error indicated.

NOTES.—Count every word wrongly spelt a mistake, even if the same error be repeated. Each omitted word to be reckoned a mistake. Parts of sentences omitted and general inaccuracy to be called "failure." Dictation lessons to be occasionally repeated, and mistakes compared with the former lesson. A portion of the poetry or prose learnt by heart to be occasionally written from memory.

II. Oral spelling.

Text-book. Spelling and pronunciation.

1. Five sentences of definite length, each containing one of the words of the lesson, to be written and brought into class.

2. The meaning of the words is to be given by definition or in a sentence.

3. A slight pause to be made between the syllables of a word. Slate to be used.

III.—Transcription.

On Monday, at 2 p.m., an exercise in transcription to be given as an extra exercise.

WRITING.

I. Text-book.—Mulhauser's Manual of Writing. Unwin's Primary School.

1. First course.

a. Exposition of the method, and of the general rules of writing; directions as to holding the pen, placing the copy-books, and positions to be observed in schools.

b. Writing

b. Writing to commence on a given signal; when a line is completed, writing is to cease till another signal is given; the line written to be examined by each student. Time for each line three or four minutes.

c. When the lesson is finished, errors to be pointed out by the students.

d. Each book to be examined by the teacher, who writes at the bottom of the page, G = good; F = fair; M = moderate; B = bad.

e. A copy to be written previous to the lesson, on the board.

f. The general principles of the method, as given in the Primary School, to be learned by heart.

2. Second course.

Exercises in free-hand, book-keeping, correspondence, précis writing, commercial forms.

Arithmetic.

Text-books.—Liddell's Arithmetic. Barnard Smith's Arithmetic for Schools.

1. The course of instruction to be commenced from the beginning, and to embrace all the rules.

2. Mental arithmetic to occupy five minutes before each lesson, and to consist of practice on the rules to be worked, as far as mental arithmetic is applicable to them.

3. Exposition of the principles of each rule.

4. Exercises previously presented to be brought into class.

5. Exposition of the method of teaching arithmetic in infant and juvenile schools.

English Language.

Text-books.—Unwin's English Grammar. Mason's English Grammar.

1. The general principles of the structure of the English language are given in a course of lectures, to be reproduced by the students. Rules and the forms of the language to be learned from the text-books. Exercises in the classification and inflexion of words, in analysis, in paraphrasing, and in compositions, to be prepared by the students.

2. The history of the English language is given in a course of lectures, to be reproduced by the students.

English History.

Text-books.—Lessons and Chronological Tables in the Training School Reader, Book II. Dr. Smith's Smaller English History.

1. The questions on the reading lessons to be answered in writing, and the chronological tables to be learned.

2. The text-book to be prepared, and exercises based on it.

3. Exposition of teaching history in primary schools.

Course of instruction prepared by Mr. Liddell.

The people of England, Britons and Romans, Saxons and Danes, Normans; fusing of the various races to form the present English. The Royal line, the various dynasties. The sovereigns, their personal characters, marriage relationships. Interruptions in the line of succession. Periods characterised by civil wars. Wars with Scotland. Conquest of Wales and Ireland. Foreign wars of England. Periods characterised by struggles between the Church and the Crown. Development of the English constitution. The Colonial Empire of Great Britain since the commencement of the Tudor dynasty. The English Revolution. Historical characters.

Geography.

Text-books.—Unwin's Descriptive Geography of the World, and Political Geography of the British Isles. Mackay's Elements of Geography. Homerton College Atlas. Page's Physical Geography.

1. Study of the text-books.

2. Exercises.

3. Mapping.

Course of instruction prepared by Mr. Liddell.

Spheroidal form of the earth. Axis of revolution. Poles. Equator. Latitude and longitude. Divisions of the earth's surface into hemispheres and zones. General distri-

bution of land and water. Horizontal extension of land and water. Irregularities of coast line, peninsulas, islands, seas, gulphs, and bays. Elevation and depression. Mountain systems and primary watersheds. River drainage. The physical features of the continents and groups of islands separately considered. The political geography of the different continents and groups of islands separately considered. The political geography of the separate continents, more especially the European States, and the United States of America, Great Britain, and Ireland. Physical features. County divisions. River basins, with the counties and towns included in them. Seaports and their commercial relations. Districts of special industrial pursuits and of the various branches of manufacture. British geography in relation to history. Geography in relation to commerce. Scripture geography. The various methods of projecting maps.

Drawing.

Text-books. Brown's Hints on Drawing. Binns' Orthographic Projection.

Course of instruction prepared by Mr. Brown :—

I. Outlines from flat copies, 18 lessons. In one hour to be correctly and neatly drawn any subject, about as difficult as copying a drawing in outline of a branch of oak bearing four leaves.

II. Outlines from objects, 14 lessons. In one hour an outline from a chair, two or three vases, or any common article of furniture.

III. Practical geometry, 12 lessons. About 50 problems to be committed to memory, from Burchett's Practical Geometry.

IV. Perspective, 12 lessons. The pupil should be able to draw in perspective a hexagonal prism, position given, or any such object in one hour, distance of picture, height of horizon, and centre of picture being given. Ascertain the distance and height of an upright pole placed on the ground, distance of picture, and centre of picture given.

V. Drawing from memory, 12 lessons. In one hour an outline to be drawn from memory of any common object in general use.

VI. Mechanical drawing, 12 lessons. In one hour a plan, elevation, or any plane section of any simple object to scale. Any projection of the same in upper or lower plane. The projection in either plane of any curve in any given position in respect to the two planes.

Vocal Music.

Text-books.—Training School Singing Method by Weber. Training School Part Songs. Homerton College Hymnal with proper tunes. Currie's Elements of Musical Analysis.

1. Theoretical. Musical notation. Rhythmics. Melodies, and the principal major and minor scales.

2. Practical. The exercises perfectly. Application of the principles to psalmody and part songs. To write down, in correct time, short and simple passages as played.

Method and Mental Science in relation to it.

Text-books.—Currie's Early and Infant School Education. Currie's Principles and Practice of Common School Education.

A course of lectures to be reproduced by the students, comprising ;—

1. The principles and methods of teaching reading, writing, arithmetic, geography, and history.

2. The methods of organising an elementary school, the composition of time tables, and school registration.

3. Expedients by which schools may approximate to a condition of self-support.

4. Questions of moral discipline and religious instruction.

School Practice.

The course of instruction extending over a period of 12 months has been divided into three sessions. Two of these have been devoted to the acquisition of knowledge ; the third chiefly to practice in the model schools, under their respective teachers.

Criticism Lessons.

Lessons are given to the scholars collectively by the male and female students, the former under the superintendence of Mr. Powell, and the latter under the superintendence of Mr. Powell and Miss Rose.

All

All the students have to write sketches of these lessons, which are given in for correction :—

SUBJECTS.	Number of Lectures per Week.	Length of each Lecture.
1. *Principal.* Superintendence of college and schools; correspondence and arrangements for schools; general business of the Board; attendance at their meetings and recording their proceedings; correction of exercises; conduct of domestic worship.		*Hours.*
English language	4	1½
Religious instruction	1	1
Reading, method, and mental science	1	1
2. *Mathematical Tutor :*		
Scripture history and geography	2	1
Euclid	3	1
Geography	4	0¾
,,	2	1
Writing	4	0½
Repetition of poetry	1	0½
English history	2	1
Arithmetic	2	1
,,	1	2
Mensuration and mechanical drawing	1	2½
Spelling and dictation	3	0½
Algebra	2	1
Mental arithmetic	1	0½
Astronomy	1	1

SUBJECTS.	Number of Lectures per Week.	Length of each Lecture.
3. *Superintendent of Female Department :*		*Hours.*
Domestic economy	3	1
Geography	3	1
Scripture history	1	1
Astronomy	1	1
English composition	2	1
Arithmetic	3	1
English history	3	1
Repetition of poetry	1	1⅔
Needlework, 4 hours per week.		
4. *Teacher of Vocal Music and Gymnastics :*		
Vocal music	5	1
,,	4	0⅔
Gymnastics, 2¼ hours per week.		
5. *Teacher of Drawing :*		
Drawing	1	3½
6. *Teacher of Juvenile Boys' School :*		
Criticism lessons	1	0½
,, ,,	1	1
7. *Teacher of Juvenile Girls' School :*		
Criticism lessons	1	0½

The Holy Scriptures.

1. Geography of Palestine, and other countries connected with Scripture history.
2. The life of our Lord Jesus Christ.

Astronomy.

General view of the heavens. Solar system. Form, size, and motions of the earth. Eclipses. Twilight. The tides. The calendar. Problems on the terrestrial globe.

Reading and Repetition from Memory.

1. To read a passage in prose and another in verse, with a distinct utterance, due attention to punctuation, and just expression.

2. To learn 300 lines of poetry, a portion of which each student will be required to repeat.

Economy.

Elementary questions in sanitary and other practical sciences of common application, and in political economy.

Book-keeping.

A set of accounts exemplifying single entry.

The following subjects are for male students only :—

Geometry.—The first two books of Euclid.

Mensuration.—Plane figures. Solids.

Algebra, as far as quadratic equations.

Latin.—The Latin accidence and exercises in Principia Latina, Part I.

French Accidence.—Exercises in Hall's 1st French Book. Translation.

The following subjects are for female students only :—

Needlework.—1. Articles of plain wearing apparel. 2. Cutting out the above articles.

Domestic Economy.—Clothing. Food. Cooking. Laundry. Duties of servants. Practical rules for the preservation of health.

A special certificate is awarded to female students who pass an examination in the First Book of Euclid, and in Algebra as far as simple equations; also for ability in translating from French or Latin.

HOMERTON COLLEGE.

Male Department.—Course of Instruction.

——	7.0–8.0.	9.30–10.30.	10 30–11.0.	11.30–12.0.	12–1.	2.0–2.20.	2.20–3.0.	3.0–3.30.	4.0–5.0.	5.20–6.0.	6.0–7.0.	7.0–8.0.
Monday	Latin, Scripture History. 1 2 3	Scripture History. 1	Arithmetic. 1 2	English Language. 1	Recreation.	Writing. 1 2	Geography. 1 2	Spelling. 1 2	Vocal Music. 1	Vocal Music. 2 3		Arithmetic. 3
Tuesday	Euclid, Latin, Book-keeping. 1 2 3	English History.	Arithmetic, Algebra. 1 2	English Language. 2		Writing. 1 2	Repetition of Poetry.	Dictation. 1	Vocal Music. 1	Vocal Music. 2 3		Algebra. 3
Wednesday	Arithmetic, Latin. 1 2 3	Mechanical and Perspective Drawing, Mensuration, and Land Surveying.				Writing. 1 2	Geography. 1 2		Vocal Music. 1	Vocal Music. 2 3		Reading, Method. 1 2 3
Thursday	Latin, Euclid. 1 2 3	Astronomy. 1 2	Arithmetic, Algebra. 1 2	English Language. 1		Writing. 1 2		3.15–4.0. Criticism Lessons.	Vocal Music. 1	Vocal Music. 2 3	6.0–6.30. Criticism Lessons. 6.30–7.0. Chanting alternate weeks.	Algebra. 3
Friday	Euclid, Latin, English Composition. 1 2 3	English History. 1	Arithmetic, Algebra. 1 2	English Language. 2		2.0–3.0. Physical Geography.		3.0–3.30. Mental Arithmetic.	Vocal Music.	5.20–6.0. French. 1	French. 2	
Saturday	Etymology, Geography. 1 2 3	9.30–11.30. Freehand Drawing.		Monday, 12.0–12.45. Saturday, 11.30–12.0. Gymnastics.	12.0–1.45. Freehand Drawing.							

To assemble in class-room at 6.30.

April 1867.

William J. Unwin, LL.D., Principal.

HOMERTON COLLEGE.

FEMALE DEPARTMENT.—Course of Instruction.

		7.0–8.0.		9.30–10.30.		10.30–11.0.		12–1.	2.0–2.20.		2.20–3.0.		4.0–5.0.		5.20–6.0.		7.0–8.0.	
Monday	To assemble in class-room at 6.45.	Scripture History, Domestic Economy.	1 2 3	Arithmetic.	1 2	English History.	1 2	Recreation.	Writing.		Spelling.		Vocal Music.	1	Vocal Music.	2 3	Arithmetic.	3
Tuesday		English Language, Etymology, English Composition.	1 2 3	Geography.	1 2	Arithmetic.	1 2		Writing.		Mental Arithmetic.		Vocal Music.	1	Vocal Music.	2 3	Arithmetic.	3
Wednesday		English History, Domestic Economy.	1 2 3	Needlework, Scripture History.	1 2	Astronomy.	2		Writing.		Repetition of Poetry, Domestic Economy. 3.15–4.0. Criticism.	1 2	Vocal Music.	1	Vocal Music.	2 3	Arithmetic.	3
Thursday		English Language, English Composition.	1 2 3	Geography.	1 2	Arithmetic.	1 2		Writing.		2.20–3.30. Geography.		Vocal Music.	1	Vocal Music.	2 3	6.30–7.0. Criticism Lesson, Chanting alternate weeks. 7.0–8.0. Reading Method.	1 2 3
Friday		English History, Domestic Economy.	1 2 3	Arithmetic, English History.	1 2	English History.	1 2		1.45–3.15. Needlework.				3.15–4.45. Criticism Lesson.		5.30–8.0. Needlework.			
Saturday		Scripture History, Geography.	1 2 3	9.30–11.0 and 11.20–1.45. Freehand Drawing.														

April 1867.

William J. Unwin, LL.D., Principal.

HOMERTON COLLEGE.

Female Department.—Preparatory Course of Instruction from September to December 1868.

——	7.0–8.0	9.30–10.30.	10.30–11.	11.15–12.	2.0–2.20.	2.20–3.0.	3.0–3.30.	4.0–5.0.	5.20–6.0.	7.0–8.0.
Monday -	Dictation.	Arithmetic.	Scripture History, and Geography.	English Language.	Writing.	Geography.	Spelling.	Vocal Music.	Vocal Music.	Arithmetic.
Tuesday - -	Geography.	Arithmetic.		,,	,,	,,	Dictation.	,,	,,	History.
Wednesday -	English History.	English History.		Dictation.	,,	,,	Repetition of Poetry.	,,	,,	Arithmetic.
Thursday -	Domestic Economy.	Arithmetic.		English Language.	,,	,,	Spelling.	,,	6.30–7. Chanting, alternate weeks.	Reading. Method.
Friday - -	English Grammar.	English History.		,,	1.45–3.15. Needlework.		3.15–4.45. Criticism Lessons.	5.30–8.0. Needlework.		
Saturday -	Dictation.	9.30–11. 11.20–1.45. Freehand Drawing.		11.0–11.20. Recreation.						

To assemble in class-room 6.30 a.m.

Recreation 4.30–5, 2nd class.

The classes from 7 to 8 a.m. and from 7 to 8 p.m. are for students as assistants in the practising schools.

September 1868.

William J. Unwin, LL.D., Principal.

HOMERTON COLLEGE.

Male Department.—Preparatory Course of Instruction from September to December 1868.

—		7.0–8.0.	9.30–10.30.	10.30–11.	11.30–12.0.	12.0–1.	2.0–2.20.	2.20–3.	3.0–3.30.	4.0–5.0.		5.20–6.0.	7.0–8.0.
Monday	To assemble in the class-room at 6·30 a.m. Recreation from 8.30 to 9.0 (1st class).	Writing and Dictation.	Arithmetic.	Scripture History, and Geography.	English Language.	Recreation: Gymnastics from 12 to 12.30 (Monday).	Writing.	Geography.	Spelling.	Vocal Music.	Recreation from 4.30 to 5.0 (2nd class).	Vocal Music.	Arithmetic and Algebra.
Tuesday		Euclid.	„	Arithmetic.	„		„	„	Dictation.	„		„	English History.
Wednesday		Geography.	English History.		Geography.		„	„	Repetition of Poetry.	„		„	Arithmetic and Algebra.
Thursday		English History.	Arithmetic.		English Language.		„	„	Spelling.	„		6–6.30. Criticism Lessons. 6.30–7. Chanting alternate weeks.	Reading and Method.
Friday		Geography.	English History.		„		Physical Geography.		Dictation.			7.0–80. English Language.	
Saturday		Euclid.	9.30–11.40. Freehand Drawing.		Gymnastics.	12.0–1.45. Freehand Drawing.							

The classes from 7 to 8 a.m. and from 7 to 8 p.m. are for students as assistants in the practising schools.

September 1868.

William J. Unwin, LL.D., Principal.

HOMERTON CONGREGATIONAL SCHOOLS.

COPY of the Preliminary Report by Her Majesty's Inspector, *Matthew Arnold*, Esquire, on the Normal and Practising Schools of the Congregational Board of Education at *Homerton*.

(*Mr. Baines.*)

Ordered, by The House of Commons, *to be Printed*,
17 *March* 1869.

86.

Under 2 *oz.*

MECHANICS' INSTITUTES (GRANTS TO ELEMENTARY CLASSES)

RETURN to an Address of the Honourable the House of Commons, dated 4th March, 1869;—*for,*

"COPY of MEMORIALS addressed to the Lord President and Vice-President of the Committee of the Privy Council for Education, on the part of Lancashire and Cheshire Union of Mechanics' Institutes, the Yorkshire Union of Mechanics' Institutes, and the East Lancashire Union of Mechanics' Institutes, in favour of GRANTS to the EVENING ELEMENTARY CLASSES of MECHANICS' INSTITUTIONS, similar in all respects to those already made to NIGHT SCHOOLS."

— No. 1. —

MEMORIAL of the Lancashire and Cheshire Union of Mechanics' Institutes.

To the Right Honourable Earl De Grey and Ripon, Lord President of the Committee of Council on Education.

The Memorial of the undersigned, being Members of the Council of the Union of Lancashire and Cheshire Institutes and others,

Showeth,

THAT the Union of Lancashire and Cheshire Institutes comprises 133 institutes, namely:—

Seventeen institutes without elementary evening classes.

Twenty-three mutual improvement societies.

Thirteen evening schools in receipt of Government grants.

Sixteen mechanics' institutes having day schools, which institutes are in receipt of Government grants for their evening classes.

Sixty-four mechanics' institutes without day schools, whose evening classes are therefore unable to claim the Government Grant.

In many of these districts there is no demand for day schools.

In one case the directors of the mechanics' institute are prohibited by the trust deed from holding a day school on the premises.

In some cases the premises are altogether unsuited for day school purposes, according to the requirements of the Committee of Council.

Your memorialists, therefore, respectfully submit and urge that the privileges and advantages possessed by evening classes held in connection with day schools under Government inspection should be extended to the evening classes held in institutes having no day schools.

And your memorialists venture to express their firm conviction that such extension would greatly increase the efficiency and value of the instruction given in these classes, and would render large and lasting service to the cause of popular education.

And your memorialists will ever pray, &c.

(signed) *Algernon Egerton*, M.P.,
and 40 others.

— No. 2. —

MEMORIAL of the Yorkshire Union of Mechanics' Institutes.

To the Right Honourable the Lord President and the Committee of Council on Education.

The Memorial of the undersigned Managers of Institutions for the Promotion of Adult Education in Yorkshire

Showeth,

THAT your memorialists are engaged in promoting the education of the industrial classes through the medium of mechanics' institutes and other kindred societies.

That the classes for instruction in elementary knowledge are attended by factory operatives, mechanics, and artisans of the same social status as the pupils in attendance at the State-aided day and night schools.

That, in consequence of the smallness of the wage earned by most of the pupils attending the classes in these institutes, and the limited means at the disposal of managers, much difficulty is experienced in making provision for the maintenance of the classes. In many cases they are but feebly conducted, and it not unfrequently happens that for a time they are suspended solely for the lack of pecuniary support.

That side by side of the classes in mechanics' institutes, night schools, having the advantage of State aid, are conducted in the buildings devoted during the day to the work of primary education.

That your memorialists desire most respectfully to direct the attention of your Lordships to the great injustice worked towards them by the restriction of State aid to night schools, held in buildings used for primary education in the day-time, to the exclusion of those classes, in every respect similar as regards the status of the pupils, mode of instruction and qualification of the teachers, held in buildings erected for the promotion of adult education.

That in the Bill intituled, "An Act to regulate the distribution of sums granted by Parliament for elementary education in England and Wales, and for other purposes," presented to the House of Lords, during the last Session of the late Parliament, by the Lord President of the Council, provision was made for the extension of State aid to classes conducted in suitable buildings other than those used as day schools, thereby proposing the removal of the inequality in the arrangements for the distribution of State aid, to which your memorialists desire to direct your attention.

That the portion of the Parliamentary Grant for Education, devoted to the promotion of instruction in science and art, is administered by your Lordships for the benefit of the same class of persons, and oftentimes for the same individuals, from whom, by the minutes of Council now in force, another portion of the said grant for instruction in reading, writing, and arithmetic is withheld, if the instruction be given in a building unconnected with a day school.

Your memorialists now earnestly request your Lordships to take their memorial into serious consideration, and by a minute of Council, or otherwise, to extend to evening classes that fulfil every condition required by the Revised Code, locality alone excepted, the State aid necessary to their stability and efficiency, already granted to evening classes held in connection with primary schools.

And your memorialists will ever pray.

(On behalf of the undersigned),

[here follow 93 names and addresses,]

(signed) *Henry H. Sales,*
Agent to the Union.

26 February 1869.

— No. 3. —

MEMORIAL of the East Lancashire Union of Mechanics' Institutes.

To the Right Honourable the Lord President and Committee of Council on Education.

The Memorial of the undersigned Members of the Council of the East Lancashire Union of Institutions having Evening Schools, and representatives of the Managing Committees of the several Institutions in Union,

Showeth,

That the evening schools comprehended in the East Lancashire Union consist of two kinds—first, classes conducted in buildings not devoted to primary education in the day-time (Mechanics' Institutions, for example); and secondly, classes held in places which are also used as day schools.

That evening schools of the first description, though generally at least as well conducted as those connected with day schools, and quite as much needing and deserving encouragement and pecuniary aid, have been injured, and in some cases extinguished, by the course adopted by your Lordships' Committee, in placing Government grants for elementary education within the reach of the second description of schools alone. Your memorialists beg also to place before your Lordships the following facts :—

1. That for a few years (between 1857 and 1861) your Lordships' Committee recognised the importance of the means by which the Council of the East Lancashire Union were promoting adult education, and assisted the Council with grants to local teachers in evening schools of both descriptions alike, and also with grants in augmentation of the salaries of the certificated organizing or itinerant masters of the Union, who were engaged in teaching schools chiefly of the first kind.

2. That your Lordships, through the Department of Science and Art, continue to give Government aid on account of scientific instruction, in evening schools unconnected with day schools, to the same teachers and scholars from whom the grants for elementary instruction are withheld.

Your memorialists desire most respectfully to represent to your Lordships that such evening schools, abounding as they do throughout Lancashire and Yorkshire and other counties, afford a ready-made machinery, too complete to be ignored, and too useful to be discouraged in the plans which your Lordships may develope for the advancement of the elementary education of youths and adults.

These schools have to a great extent originated naturally as the spontaneous expression of the views of the working classes as to the best means for supplying a want which has been but recently acknowledged by your Lordships. That your Lordships should continue to leave them to perish, and at the same time to offer inducements to the managers and teachers of day schools to set up new evening schools of an essentially similar character in opposition, would seem to your memorialists to be a policy as unwise as it would be unjust.

Your memorialists have only earnestly to ask that the same aid may henceforth be extended to both descriptions of evening schools alike.

And your memorialists will ever pray.

(signed) *J. P. Kay Shuttleworth*,
and 18 others.

MECHANICS' INSTITUTES
(GRANTS TO ELEMENTARY CLASSES).

COPIES of MEMORIALS addressed to the Lord President of the Committee of the Privy Council for Education, on the part of Lancashire and Cheshire Union of Mechanics' Institutes, the Yorkshire Union of Mechanics' Institutes, and the East Lancashire Union of Mechanics' Institutes, in favour of GRANTS to the EVENING ELEMENTARY CLASSES of MECHANICS' INSTITUTIONS, similar in all respects to those already made to NIGHT SCHOOLS.

(*Mr. Baines.*)

Ordered, by The House of Commons, *to be Printed,*
16 *March* 1869.

82.

Under 1 *oz.*

263

EDUCATION (NATIONAL SOCIETY).

RETURN to an Address of the Honourable The House of Commons, dated 15 March 1869;—*for*,

"COPY of a LETTER and ENCLOSURE addressed by the SECRETARY of the NATIONAL SCHOOL SOCIETY to the SECRETARY of the COMMITTEE of the PRIVY COUNCIL ON EDUCATION."

(*Mr. Acland.*)

Ordered, by The House of Commons, *to be Printed*, 22 *March* 1869.

RETURN enclosed in a LETTER from the Secretary of the National Society for Promoting the Education into STATE of EDUCATION in CHURCH of ENGLAND Schools in 1866 which has been made by the The Return to have reference to the several COUNTIES in *England* and *Wales*, with Totals for *England*

[This Return has reference simply to Church of England Schools for the Poor. Church of England

COUNTIES PROPER.	Number of Ecclesiastical Parishes and Districts in each County.	Population at Census 1861.	Population in December 1866, as estimated by the Registrar General.	Number of Week-day Schools, *i.e.*, Institutions.			Number of Scholars	
				Receiving Annual State Grants.	Not receiving Annual State Grants.	Total.	In Schools annually aided by the State.	
							Day Schools.	Night Schools.
ENGLAND.								
Bedford	138	135,287	141,909	35	82	117	5,404	823
Berks	215	176,256	179,912	74	125	199	10,682	340
Buckingham	230	167,993	170,493	57	136	193	6,926	264
Cambridge	190	176,016	170,844	44	101	145	5,866	293
Chester	254	505,428	536,364	155	89	244	30,750	1,091
Cornwall	264	369,390	377,569	77	135	212	10,564	252
Cumberland	164	205,276	211,115	51	94	145	8,138	223
Derby	244	339,327	366,941	94	131	225	16,364	588
Devon	539	584,373	594,524	144	271	415	22,178	764
Dorset	303	188,789	191,469	87	148	235	10,902	1,146
Durham	179	508,666	591,575	99	80	179	18,904	603
Essex	458	404,851	426,767	104	278	382	10,590	903
Gloucester	448	485,770	501,955	164	205	369	26,651	1,054
Hants	459	572,746	623,148	188	201	389	28,128	1,111
Hereford	249	123,712	128,693	40	119	159	3,910	36
Hertford	170	173,280	176,809	70	79	149	8,078	313
Huntingdon	104	64,250	64,288	19	56	75	2,210	65
Kent	531	733,887	811,648	205	178	383	35,589	1,049
Lancaster	597	2,429,440	2,692,306	391	244	635	110,896	8,993
Leicester	287	237,412	241,587	65	180	245	10,775	886
Lincoln	695	412,246	415,157	129	322	451	16,438	851
Middlesex	437	2,206,485	2,414,022	261	167	428	83,070	1,874
Monmouth	151	174,633	185,350	29	68	97	5,849	525
Norfolk	781	434,798	430,319	123	473	596	15,845	624
Northampton	314	227,704	236,993	75	178	253	10,601	822
Northumberland	163	343,025	367,945	63	76	139	8,276	266
Nottingham	254	293,867	308,225	82	108	190	15,170	862
Oxford	266	170,944	171,234	84	149	233	9,124	538
Rutland	52	21,861	21,242	11	28	39	1,332	32
Salop	302	240,959	247,890	82	148	230	12,310	483
Somerset	567	444,873	445,423	160	285	445	22,279	1,225
Stafford	318	746,943	840,023	188	105	293	37,997	2,716
Suffolk	534	337,070	336,987	100	297	397	14,421	785
Surrey	295	831,093	930,105	170	106	276	40,665	1,130
Sussex	384	363,735	380,126	102	190	292	14,956	584
Warwick	284	561,855	618,689	109	131	240	23,849	3,507
Westmorland	82	60,817	62,318	31	46	77	3,137	111
Wilts	364	249,311	246,536	133	194	327	17,028	2,215
Worcester	253	307,397	326,375	78	117	195	15,133	1,819
York	1,145	2,033,610	2,182,733	517	451	968	99,795	5,960
TOTAL, ENGLAND	13,664	19,045,375	20,367,608	4,690	6,571	11,261	850,780	47,726

of the Poor in the Principles of the Established Church, containing in Tabular Form, Results of Inquiry Society through the Incumbent of every Parish or Ecclesiastical District throughout *England* and *Wales*. and *Wales* respectively, and also for *England* and *Wales* collectively.

Schools which are exclusively kept for the pecuniary profit of private persons are excluded.]

on Registers.		Average Number of Week-day Scholars in Attendance.				Total Average Number of Scholars under Instruction in Day and Night Schools in 1866.	Per-centage on Population of 1866 (as estimated by the Registrar General) of such Average Number.	Church of England Dames' Schools and Scholars in them not included in the previous Columns.	
In Schools not annually aided by the State.		In Schools annually aided by the State.		In Schools not annually aided by the State.					
In Day Schools.	In Night Schools.	In Day Schools.	In Night Schools.	In Day Schools.	In Night Schools.			Number of Dames' Schools.	Average Number of Scholars in Attendance.
4,205	1,878	3,879	574	3,558	1,352	9,363	6·5 or 1 in 15·1	5	131
8,320	1,790	7,547	225	5,132	1,143	14,047	7·8 or 1 in 12·8	14	359
9,010	2,657	5,061	183	5,617	1,627	12,488	7·3 or 1 in 13·6	15	423
8,498	1,797	4,397	206	5,961	1,334	11,898	6·9 or 1 in 14·3	8	176
9,657	1,379	21,689	725	5,836	914	29,164	5·4 or 1 in 18·3	3	88
8,941	698	7,395	188	3,355	306	11,244	2·9 or 1 in 33·5	17	427
7,888	476	6,064	143	6,140	398	12,745	6·0 or 1 in 16·5	2	65
11,245	1,400	11,992	423	8,040	920	21,375	5·8 or 1 in 17·1	3	46
19,009	1,646	15,843	456	13,867	816	30,982	5·2 or 1 in 19·1	42	1,161
8,849	2,664	7,976	867	6,452	1,957	17,252	9·0 or 1 in 11·0	16	344
15,930	1,196	14,470	374	11,934	710	27,488	4·6 or 1 in 21·5	3	77
27,307	3,259	6,564	597	21,232	2,320	30,713	7·1 or 1 in 13·8	34	793
14,188	3,277	18,762	733	10,250	2,280	32,025	6·3 or 1 in 15·6	19	383
15,438	3,025	20,575	787	11,768	2,237	35,367	5·6 or 1 in 17·6	28	576
7,204	452	2,854	28	5,244	336	8,462	6·5 or 1 in 15·2	22	428
8,331	2,149	6,066	246	5,889	1,464	13,665	7·7 or 1 in 12·9	6	165
4,440	993	1,628	49	3,017	680	5,374	8·3 or 1 in 11·9	5	108
22,398	2,445	26,163	681	15,721	1,557	44,122	5·4 or 1 in 18·3	16	437
60,651	9,454	79,725	5,676	41,595	6,670	133,666	4·9 or 1 in 20·1	3	58
9,262	1,931	7,631	602	6,794	1,153	16,180	6·6 or 1 in 14·9	14	255
21,690	2,225	11,505	560	15,930	1,558	29,553	7·1 or 1 in 14·0	48	907
42,095	9,787	62,447	1,247	29,594	5,673	98,961	4·0 or 1 in 24·3	1	45
3,535	250	4,190	278	2,384	174	7,026	3·7 or 1 in 26·3	16	247
23,033	4,578	11,617	452	16,740	3,403	32,212	7·4 or 1 in 13·3	32	523
11,038	2,736	7,645	440	7,942	2,117	18,144	7·6 or 1 in 13·0	14	255
6,292	284	6,351	196	4,672	268	11,487	3·1 or 1 in 32·0	2	35
10,099	1,966	10,595	468	7,193	1,241	19,497	6·3 or 1 in 15·8	14	235
8,983	2,096	6,786	393	6,726	1,467	15,372	8·9 or 1 in 11·1	13	255
1,720	225	977	19	1,288	184	2,468	11·6 or 1 in 8·6	3	77
10,842	735	8,902	346	6,897	473	16,618	6·7 or 1 in 14·9	17	412
17,713	3,121	15,895	728	12,840	2,078	31,541	7·0 or 1 in 14·1	46	1,099
13,416	1,182	27.377	1,781	9,021	653	38,832	4·6 or 1 in 21·6	8	252
16,609	3,502	10,502	536	12,227	2,629	25,894	7·6 or 1 in 13·0	46	971
15,946	3,732	29,900	679	10,960	2,515	44,054	4·7 or 1 in 21·1	6	118
15,057	2,422	10,915	435	11,112	1,750	24,212	6·3 or 1 in 15·6	19	378
12,956	3,557	17,767	1,831	8,756	2,271	30,625	4·9 or 1 in 20·2	17	390
3,712	134	2,418	75	2,795	102	5,390	8·0 or 1 in 11·5	1	10
10,629	3,308	13,016	1,598	7,259	2,360	24,233	9·8 or 1 in 10·1	14	380
9,406	1,425	10,899	1,114	6,689	897	19,599	6·0 or 1 in 16·6	19	475
46,917	5,213	70,227	3,771	34,787	3,468	112,203	5·1 or 1 in 19·4	28	465
582,459	97,044	616,212	30,710	413,164	65,455	1,125,541	5·5 or 1 in 18·0	639	14,029

Counties Proper.	Number of Ecclesiastical Parishes and Districts in each County.	Population at Census 1861.	Population in December 1866, as estimated by the Registrar General.	Number of Week-day Schools, *i. e.*, Institutions.			Number of Scholars	
				Receiving Annual State Grants.	Not receiving Annual State Grants.	Total.	In Schools annually aided by the State.	
							Day Schools.	Night Schools.
WALES.								
Anglesea - - - -	78	54,609	53,107	22	29	51	2,192	64
Brecknock - - -	81	61,627	61,714	18	31	49	2,078	79
Cardigan - - - -	76	72,245	73,089	18	33	51	2,209	- -
Carmarthen - - -	130	111,796	112,469	34	43	77	4,001	159
Carnarvon - - -	80	95,694	100,495	34	23	57	5,883	301
Denbigh - - - -	79	100,778	105,804	37	25	62	5,337	329
Flint - - - -	52	69,737	70,660	36	13	49	5,088	171
Glamorgan - - -	167	317,752	380,754	61	51	112	11,887	1,588
Merioneth - - -	47	38,963	39,032	13	24	37	1,349	21
Montgomery - - -	66	66,919	66,681	25	30	55	2,784	52
Pembroke - - -	139	96,278	97,526	21	55	76	2,473	29
Radnor - - - -	50	25,382	25,772	8	27	35	627	- -
Total, Wales - £.	1,045	1,111,780	1,187,103	327	384	711	45,908	2,793
Total, England and Wales - - £.	14,709	20,157,155	21,554,711	5,017	6,955	11,972	896,688	50,519

National Society's Office,
9 February 1869.

Note I.—The difference between the number of Institutions and of Parishes referred to in this Table does not represent the number of places which are unprovided with the means of Church of England week-day Education. The difference in question is to a great extent made up of Parishes which are reported to the Society as being supplied with week-day Education by Church of England Schools in adjoining Parishes. In certain cases (*e. g.*, Durham and Lancashire) the Institutions are equal to or exceed in number the Parishes; but in such cases there are often two or more Institutions in one Parish.

Note II.—From this Table it appears that, while in England and Wales 5·4 per cent. or 1 in 18·2 of the total population is in *average daily attendance* in Church of England week-day and night Schools, the per-centage of the population if calculated upon the *number on the Books* of the same Schools is 7·6 or 1 in 13·0.

on Registers.		Average Number of Week-day Scholars in Attendance.				Total Average Number of Scholars under Instruction in Day and Night Schools in 1866.	Per-centage on Population of 1866 (as estimated by the Registrar General) of such Average Number.	Church of England Dames' Schools and Scholars in them not included in the previous Columns.	
In Schools not annually aided by the State.		In Schools annually aided by the State.		In Schools not annually aided by the State.				Number of Dames' Schools.	Average Number of Scholars in Attendance.
In Day Schools.	In Night Schools.	In Day Schools.	In Night Schools.	In Day Schools.	In Night Schools.				
1,105	56	1,681	43	710	41	2,475	4·6 or 1 in 21·4	1	42
1,102	80	1,378	42	822	57	2,299	3·7 or 1 in 26·8	—	—
1,874	- -	1,665	- -	1,295	- -	2,960	4·0 or 1 in 24·6	—	—
3,274	73	2,895	117	2,403	54	5,469	4·8 or 1 in 20·5	—	—
1,384	71	4,357	220	918	33	5,528	5·5 or 1 in 18·1	—	—
2,200	152	3,798	190	1,623	117	5,728	5·4 or 1 in 18·4	4	88
1,950	78	3,559	104	1,386	45	5,094	7·2 1 in 13·8	—	—
6,468	256	8,965	996	4,181	127	14,269	3·7 or 1 in 26·6	11	314
1,136	85	969	17	763	54	1,803	4·6 or 1 in 21·6	—	—
1,295	55	2,050	32	817	43	2,942	4·4 or 1 in 22·6	1	23
3,628	73	1,758	24	2,566	55	4,403	4·5 or 1 in 22·1	6	178
1,293	39	458	–	875	33	1,366	5·2 or 1 in 18·8	—	—
26,709	1,018	33,533	1,785	18,359	659	54,336	4·5 or 1 in 21·8	23	645
609,168	98,062	649,745	32,495	431,523	66,114	1,179,877	5·4 or 1 in 18·2	662	14,674

Alexander Wilson,
Secretary.

Note III.—Excluding the Dames' or Cottage Schools it appears from this Table that 41·9 per cent. of Church of England Week-day Schools or Institutions in England and Wales is annually aided by the Committee of Council on Education; thus leaving 58·1 per cent. not so aided.

Note IV.—Excluding the scholars in Dames' or Cottage Schools, it also appears that 57·2 per cent. of the Scholars *on the Books* in Church of England Week-day and Night Schools is in Schools annually aided by the Committee of Council on Education; thus leaving 42·8 per cent. in such Schools not so aided.

Note V.—In 1856 the per-centage of the total population of England and Wales in Church of England Week-day and Night Schools was 6·3 or 1 in 15·6 (*see* "Summaries of Returns," published in 1858 by the National Society). In 1866, as seen by this Table, it was 7·6 or 1 in 13·0 of the total population at this period.

[EDUCATION (NATIONAL SOCIETY).

COPY of a LETTER and ENCLOSURE addressed by the SECRETARY of the NATIONAL SCHOOL SOCIETY to the SECRETARY of the COMMITTEE of the PRIVY COUNCIL ON EDUCATION.

(*Mr. Acland.*)

Ordered, by The House of Commons, *to be Printed,*
22 *March* 1869.

96. *Under* 1 *oz.*

PARISHES.

RETURN to an Address of the Honourable The House of Commons, dated 6 July 1868;—*for*,

"RETURN showing the PARISHES in which Alterations have been made in respect of the Number or Accommodation of SCHOOLS aided by PARLIAMENTARY GRANTS, giving the Average Attendance in each New or Altered School, completed to the 31st day of December 1868 (in continuation of Parliamentary Paper, No. 114, of the present Session), as per annexed Schedule :—

County.	Original or Mother Parish.	Poor Law Parish, Township, or Place.	Page of Parliamentary Paper, No. 114, Session 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.								Remarks.
					Number of Schools.		Accommodation at Ten Square Feet per Child.		Average Attendance.				
					Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools not receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools not receiving Annual Grants.		
									Day.	Night.	Day.	Night.	

Note.—Many Schools which were not receiving Annual Grants, but had been otherwise aided at the time when Parliamentary Paper, No. 114, Session 1868, was prepared, are now in receipt of such Grants, having since fulfilled the conditions which entitle them to Annual Aid. These cases are marked with an *.

Schools which were formerly returned as in receipt of Annual Grants, but are not at present receiving them, are distinguished by a †.

*** The abbreviations used in this Return have the following significations :—

Bor.	Borough.	Man.	Manor.
Cha.	Chapelry.	Par.	Parish.
Dis.	District.	Pa. Cha.	Parochial Chapelry.
Div.	Division.	Pre	Precinct.
For.	Foreign.	Tow.	Township.
Ham.	Hamlet.	Ty.	Tything.
Lib.	Liberty.	U. P.	United Parishes.
Lord.	Lordship.		

(*Lord Robert Montagu.*)

Ordered, by The House of Commons, *to be Printed*,
6 *April* 1869.

RETURN showing the PARISHES in which Alterations have been made in respect of the Number or Accommodation of SCHOOLS aided by PARLIAMENTARY GRANTS, giving the Average Attendance in each New or Altered School, completed to the 31st day of December 1868.

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867–8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND:													
BEDFORD	Puddington	Puddington	par.	2	Wellingborough (171)	*1	–	80	–	78	39	–	–
	Kempston	Kempston	par.	2	Bedford (179)	1	–	60	–	70	56	–	–
	Oakley	Oakley	par.	2	Ditto „	1	–	64	–	25	–	–	–
	Lidlington	Lidlington	par.	4	Ampthill (181)	1	–	93	–	91	41	–	–
	Millbrook	Millbrook	par.	4	Ditto „	1	–	74	–	54	–	–	–
	Husborne Crawley	Husborne Crawley	par.	6	Woburn (182)	1	–	117	–	70	–	–	–
BERKS	Newbury	Newbury	par.	6	Newbury (120)	1	–	48	–	54	–	–	–
	Beenham Vallence	Beenham Vallence	par.	12	Bradfield (126)	–	†1	–	56	–	–	58	7
	Reading, St. Giles	Reading, St. Giles	par.	12	Reading (127)	–	–	–	(*a*) 288	–	–	220	–
	Wokingham	Wokingham	par.	12	Wokingham (128)	1	–	155	–	133	–	–	–
	Clewer	Clewer	par.	14	Windsor (131)	1	–	66	–	40	–	–	–
BUCKS	Chenies	Chenies or Islehampstead Chenies.	par.	14	Amersham (148)	1	–	82	–	43	–	–	–
	Chipping Wycombe	Chipping or High Wycombe.	cor.	16	Wycombe (150)	1	–	61	–	62	–	–	–
	West Wycombe	West Wycombe	par.	16	Ditto „	1	–	50	–	53	–	–	–
	Haddenham	Haddenham	par.	16	Aylesbury (151)	1	–	99	–	24	–	–	–
	East Claydon	East Claydon	par.	18	Winslow (152)	1	–	53	–	36	–	–	–
	Loughton	Loughton	par.	18	Newport Pagnell (153)	1	–	50	–	55	–	–	–
	Akeley-cum-Stockholt	Akeley-cum-Stockholt	par.	20	Buckingham (154)	–	–	(*b*) 18	–	–	–	–	–
	Towersey	Towersey	par.	22	Thame (156)	–	†1	–	64	–	–	46	–
CAMBRIDGE	Steeple Morden	Steeple Morden	par.	22	Royston (140)	1	–	104	–	92	–	–	–
	Bourn	Bourn	par.	24	Caxton (185)	1	–	115	–	56	–	–	–
	Croydon-cum-Clapton	Croydon-cum-Clapton	par.	24	Ditto „	*1	–	84	–	53	–	–	–
	Wicken	Wicken	par.	26	Newmarket (189)	*1	–	99	–	104	46	–	–
	Ely Trinity	Ely Trinity	par.	28	Ely (190)	–	1	–	108	–	–	133	–
	Tydd, St. Giles	Tydd, St. Giles	par.	28	Wisbech (193)	*1	–	94	–	45	–	–	–
	Wisbech, St. Mary	Wisbech, St. Mary	par.	28	Ditto „	2	–	94	–	49	–	–	–

Chester	Stockport	Marple	tow.	30	Stockport	(452)	1	–	172	–	135	–	–	–
	Prestbury	Macclesfield	tow.	30	Macclesfield	(453)	–	†1	–	139	–	–	47	23
	Rostherne	Peover Superior	tow.	32	Altrincham	(454)	1	–	40	–	49	–	–	–
	Runcorn	Halton	tow.	34	Runcorn	(455)	1	–	78	–	65	–	–	–
	Davenham	Leftwich	tow.	36	Northwich	(456)	(c) 1	–	54	–	36	–	–	–
	Astbury	Buglawton	tow.	38	Congleton	(457)	1	–	59	–	28	–	–	–
	Tarporley	Utkinton	tow.	40	Nantwich	(458)	(d) –	–	–	–	–	–	–	–
	Wybunbury	Wybunbury	tow.	40	Ditto	„	* 1	–	49	–	63	–	–	–
	Waverton	Huxley	tow.	44	Great Boughton	(459)	* 1	–	50	–	15	–	–	–
	St. Oswald	St. Oswald (Chester)	par.	44	Ditto	„	1	–	175	–	176	–	–	–
	West Kirby	Frankby	tow.	46	Wirrall	(460 A)	1	–	52	–	45	–	–	–
	Birkenhead	Birkenhead	pa. cha.	48	Birkenhead	(460 B)	1	–	(e) 149	–	30	–	–	–
	Wallasey	Poulton-cum-Seacombe	tow.	48	Ditto	„	2	–	514	–	206	–	–	–
	Bebington	Tranmere	tow.	48	Ditto	„	1	–	50	–	45	–	–	–
	Mottram	Stayley	tow.	48	Ashton-under-Lyne	(474)	* 1	–	180	–	38	–	–	–
	Mottram	Tintwistle	tow.	48	Ditto	„	1	–	91	–	49	–	–	–
Cornwall	St. Stephen-by-Saltash	St. Stephen-by-Saltash	par.	50	St. Germans	(302)	1	–	82	–	62	–	–	–
	Lanreath	Lanreath	par.	50	Liskeard	(303)	–	1	–	80	–	–	60	–
	Lanhydrock	Lanhydrock	par.	52	Bodmin	(304)	1	–	31	–	33	–	–	–
	St. Austell	St. Austell	par.	52	St. Austell	(306)	1	–	127	–	56	–	–	–
	St. Blazey	St. Blazey	par.	52	Ditto	„	–	†1	–	70	–	–	21	–
	St. Feock	St. Feock	par.	54	Truro	(307)	1	–	72	–	62	–	–	–
	Cury	Cury	par.	54	Helstone	(309)	–	†1	–	75	–	–	20	–
	Sithney	Sithney	par.	54	Ditto	„	–	†1	–	115	–	–	26	–
	Madron	Madron	par.	54	Penzance	(311)	–	†1	–	156	–	–	129	–
Cumberland	Brampton	Brampton	par.	58	Brampton	(566)	–	–	(f) 97	–	–	–	–	–
	St. Mary, Carlisle	Cummersdale	tow.	58	Carlisle	(568)	1	–	77	–	52	–	–	–
	Wetheral	Wetheral, part of	par.	58	Ditto	„	1	–	96	–	58	10	–	–
	Dearham	Ellenborough and Ewanrigg.	tow.	62	Cockermouth	(570)	* 1	–	74	–	78	–	–	–
	Cleator	Cleator	par.	62	Whitehaven	(571)	(g) 2	–	278	–	249	–	–	–
Derby	Croxall	Croxall	par.	66	Tamworth	(376)	1	–	60	–	53	–	–	–
	Scarcliff	Scarcliff	par.	66	Mansfield	(437)	1	–	48	–	35	–	–	–
	Elvaston	Elvaston	par.	68	Shardlow	(444)	1	–	54	–	48	–	–	–
	St. Peter, Derby	Litchurch	tow.	68	Derby	(445)	1	–	240	–	145	–	–	–
	Alfreton	Alfreton	par.	70	Belper	(446)	–	1	–	120	–	–	120	–
	Shirland	Shirland and Higham	tow.	74	Chesterfield	(448)	(h) 2	–	219	–	136	–	–	–
	Bakewell	Bakewell	tow.	74	Bakewell	(449)	1	–	94	–	30	–	–	–
	Youlgreave	Youlgreave	tow.	76	Ditto	„	1	–	196	–	109	–	–	–
	Tideswell	Wormhill	tow.	76	Chapel-en-le-Frith	(450)	1	–	27	–	31	–	–	–
Devon	Withycombe Rawleigh	Withycombe Rawleigh	par.	80	St. Thomas	(281)	* 1	–	108	–	37	–	–	–
	East Teignmouth	East Teignmouth	par.	82	Newton Abbot	(283)	1	–	64	–	43	–	–	–
	Ipplepen	Ipplepen	par.	82	Ditto	„	1	–	117	–	46	11	–	–
	Widecomb-in-the-Moor	Widecomb-in-the-Moor	par.	82	Ditto	„	1	–	45	–	30	–	–	–

(a) School recently built in lieu of one returned in Parliamentary Paper, No. 114, as having accommodation for 94 children, and having then an average attendance of 28.
(b) Additional accommodation.
(c) This was returned as a closed school in Parliamentary Paper, No. 114.
(d) A school returned in this parish as receiving annual grants, in Parliamentary Paper, No. 114, is now closed.
(e) This number includes 120, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(f) Additional accommodation.
(g) One of these schools was returned as not receiving annual grants, in Parliamentary Paper, No. 114.
(h) One of these schools was returned as not receiving annual grants, in Parliamentary Paper, No. 114.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867–8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
										In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
DEVON—*cont*ᵈ.	Buckfastleigh	Buckfastleigh	par.	82	Totnes (284)	*1	–	240	–	67	13	–	–
	Ugborough	Ugborough	par.	84	ditto „	1	–	128	–	81	10	–	–
	Blackawton	Blackawton	par.	84	Kingsbridge (285)	1	–	65	–	43	–	–	–
	South Pool	South Pool	par.	84	Ditto „	–	1	–	60	–	–	(*a*)	–
	Stoke Fleming	Stoke Fleming	par.	84	Ditto „	1	–	59	–	58	–	–	–
	Buckland Monachorum	Buckland Monachorum	par.	86	Tavistock (290)	*1	–	90	–	34	–	–	–
	Meavy	Meavy	par.	86	Ditto „	*1	–	54	–	25	–	–	–
	Milton Abbott	Milton Abbott	par.	86	Ditto „	1	–	47	–	33	18	–	–
	Sydenham Damerel	Sydenham Damerel	par.	86	Ditto „	1	–	52	–	46	6	–	–
	King's Nympton	King's Nympton	par.	90	South Molton (294)	1	–	90	–	48	7	–	–
	Challacombe	Challacombe	par.	90	Barnstable (295)	–	1	–	44	–	–	36	–
	Landkey	Landkey	par.	92	Ditto „	1	–	59	–	50	–	–	–
	Morebath	Morebath	par.	94	Dulverton (313 B)	1	–	56	–	37	–	–	–
DORSET	Pimperne	Pimperne	par.	96	Blandford (270)	*1	–	74	–	53	–	–	–
	Stourpaine	Stourpaine	par.	96	Ditto „	*1	–	73	–	84	–	–	–
	Witchampton	Witchampton	par.	98	Wimborne (271)	1	–	83	–	70	–	–	–
	Canford Magna	Kinson or Kingstone	ty.	98	Poole (272)	*1	–	57	–	44	–	–	–
	St. James, Poole	St. James, Poole	par.	98	Ditto „	2	–	361	–	101	18	–	–
	Langton Matravers	Langton Matravers	par.	98	Wareham (273)	–	†1	–	108	–	–	96	–
	Swanage	Swanage	par.	98	Ditto „	1	–	146	–	63	–	–	–
	Winfrith Newburgh	Winfrith Newburgh	par.	100	Ditto „	–	†1	–	45	–	–	23	–
	Fordington	Fordington	par.	100	Dorchester (275)	*1	–	118	–	58	–	–	–
	Cerne Abbas	Cerne Abbas	par.	102	Ditto „	*1	–	92	–	58	–	–	–
DURHAM	Darlington	Cockerton	tow.	106	Darlington (540)	1	–	54	–	47	–	–	–
	Haughton-le-Skerne	Sadberge	tow.	106	Ditto „	1	–	75	–	37	11	–	–
	Billingham	Billingham	tow.	108	Stockton (541 A)	*1	–	106	–	30	–	–	–
	Long Newton	Long Newton	par.	108	Ditto „	1	–	69	–	40	–	–	–
	Stockton-upon-Tees	Stockton-upon-Tees	tow.	108	Ditto „	1	–	181	–	122	–	–	–
	Brancepeth	Crook and Billy Row	tow.	108	Auckland (542)	1	–	363	–	511	–	–	–
	St. Andrew, Auckland	Lynesack and Softley	tow.	108	Ditto „	*1	–	92	–	38	–	–	–
	St. Andrew, Auckland	Newton Cap	tow.	110	Ditto „	1	–	135	–	87	24	–	–
	Stanhope	Stanhope	par.	110	Weardale (544)	2	†1	292	65	254	–	77	–
	Wolsingham	Wolsingham	par.	110	Ditto „	–	–	(*b*) 56	–	–	–	–	–
	Brancepeth	Brandon and Byshottles	tow.	110	Durham (545)	1	–	131	–	77	–	–	–
	Pittington	Pittington	tow.	112	Ditto „	1	–	134	–	77	–	–	–

	Pittington	Shadforth	tow.	112	Ditto	„	*1	–	48	–	15	6	–	–	–	–
	Brancepeth	Willington	tow.	112	Ditto	„	–	†1	–	139	–	–	110	–	–	–
	Lanchester	Iveston	tow.	112	Ditto	„	–	–	140	–	83	–	–	–	–	–
	Muggleswick	Muggleswick	par.	112	Ditto	„	*1	†1	–	54	–	–	11	–	–	–
	Chester-le-Street	Tanfield	cha.	112	Ditto	„	–	–	161	–	75	–	–	–	–	–
	Dalton-le-Dale	Dawdon	tow.	112	Easington	(546)	1	–	144	–	45	–	–	–	–	–
	Seaham	Seaham	tow.	114	Ditto	„	1	–	411	–	306	–	–	–	–	–
	Houghton-le-Spring	Penshaw	tow.	114	Houghton-le Spring	(547)	1	–	182	–	133	33	–	–	–	–
	Washington	Great and Little Usworth	tow.	114	Chester-le-Street	(548)	1	–	108	–	181	–	–	–	–	–
	Bishop Wearmouth	Bishop Wearmouth	tow.	114	Sunderland	(549)	1	–	479	–	305	38	–	–	–	–
	Bishop Wearmouth	Ford	tow.	114	Ditto	„	*1	–	59	–	68	–	–	–	–	–
	Jarrow	South Shields	tow.	116	South Shields	(550)	1	–	389	–	300	–	–	–	–	–
	Jarrow	Westoe	tow.	116	Ditto	„	1	–	471	–	189	–	–	–	–	–
	Gateshead	Gateshead	par.	116	Gateshead	(551)	1	–	160	–	150	–	–	–	–	–
	Ryton	Ryton	tow.	116	Ditto	„	1	–	94	–	64	–	–	–	–	–
	Whickham	Whickham	par.	116	Ditto	„	1	–	112	–	105	–	–	–	–	–
ESSEX	Waltham Abbey or Waltham Holy Cross	Waltham Abbey or Waltham Holy Cross.	par.	116	Edmonton	(137)	*1	–	92	–	70	–	–	–	–	–
	Walthamstow	Walthamstow	par.	116	West Ham	(194)	1	–	58	–	53	–	–	–	–	–
	West Ham	West Ham	par.	116	Ditto	„	1	–	106	–	96	–	–	–	–	–
	Chigwell	Chigwell	par.	116	Epping	(195)	*2	–	196	–	138	–	–	–	–	–
	Dagenham	Dagenham	par.	118	Romford	(197)	*1	–	62	–	77	–	–	–	–	–
	North Benfleet	North Benfleet	par.	120	Billericay	(199)	*1	–	45	–	30	15	–	–	–	–
	Springfield	Springfield	par.	120	Chelmsford	(200)	1	–	43	–	44	–	–	–	–	–
	Rayleigh	Rayleigh	par.	122	Rochford	(201)	1	–	114	–	82	–	–	–	–	–
	Tollesbury	Tollesbury	par.	122	Maldon	(202)	1	–	54	–	47	–	–	–	–	–
	St. Nicholas (Harwich)	St. Nicholas (Harwich)	par.	124	Tendring	(203)	*1	–	100	–	120	–	–	–	–	–
	St. Osyth or Chick	St. Osyth or Chick	par.	124	Ditto	„	*1	–	142	–	74	–	–	–	–	–
	Weeley	Weeley	par.	124	Ditto	„	–	1	–	84	–	–	60	–	–	–
	Colne Engaine	Colne Engaine	par.	126	Halstead	(207)	*1	–	72	–	52	–	–	–	–	–
	Ridgwell	Ridgwell	par.	126	Ditto	„	1	–	63	–	52	–	–	–	–	–
	Sible Hedingham	Sible Hedingham	par.	126	Ditto	„	*1	–	178	–	90	–	–	–	–	–
	Braintree	Braintree	par.	126	Braintree	(208)	*1	–	330	–	106	–	–	–	–	–
	Foxearth	Foxearth	par.	130	Sudbury	(212)	*1	–	84	–	35	20	–	–	–	–
GLOUCESTER	Clifton	Clifton	par.	132	Clifton	(330)	2	–	363	–	120	–	–	–	–	–
	St. George	St. George	par.	132	Ditto	„	1	–	129	–	135	–	–	–	–	–
	St. Philip and Jacob	St. Philip and Jacob	out par.	132	Ditto	„	3	–	895	–	574	–	–	–	–	–
	Chipping Sodbury	Chipping Sodbury	par.	132	Chipping Sodbury	(331)	*1	–	99	–	88	22	–	–	–	–
	Almondsbury	Almondsbury	par.	132	Thornbury	(332)	*1	–	51	–	33	–	–	–	–	–
	Berkeley	Berkeley	bor.	132	Ditto	„	1	–	197	–	62	–	–	–	–	–
	Coaley	Coaley	par.	134	Dursley	(333)	1	–	80	–	39	–	–	–	–	–
	Newnham	Newnham	par.	134	Westbury-on-Severn	(334)	1	–	69	–	58	–	–	–	–	–
	South Hamlet	South Hamlet	par.	136	Gloucester	(336)	1	–	119	–	139	26	–	–	–	–
	Stroud	Stroud	par.	138	Stroud	(338)	1	–	97	–	59	–	–	–	–	–
	Coates	Coates	par.	138	Cirencester	(340)	–	–	–	30 (c)	–	–	–	–	–	–
	Rendcombe	Rendcombe	par.	138	Ditto	„	1	–	28	–	19	–	–	–	–	–
	Lower Swell	Lower Swell	par.	140	Stow-on-the Wold	(342)	*1	–	59	–	46	–	–	–	–	–
	Ashchurch	Ashchurch	par.	142	Tewkesbury	(345)	*1	–	75	–	31	–	–	–	–	–
	Leigh	Leigh	par.	142	Ditto	„	*1	–	54	–	33	–	–	–	–	–
	Newland	Newland	par.	144	Monmouth	(577)	*1	†1	110	47	48	13	49	–	–	–
		West Dean	tow.	144	Ditto	„	1	–	149	–	63	–	–	–	–	–

(a) No return of average attendance. | (b) Additional accommodation. | (c) Additional accommodation.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
HANTS	Aldershot	Aldershot	par.	144	Farnham (40)	1	–	47	–	13	–	–	–
	Yateley	Hawley and Minley	ty.	146	Farnborough (41)	1	–	82	–	69	–	–	–
	Bedhampton	Bedhampton	par.	146	Havant (95)	1	–	73	–	56	–	–	–
	Portsea	Portsea	par.	146	Portsea Island (96)	2	–	388	–	200	–	–	–
	Arreton	Arreton	par.	146	Isle of Wight (99)	* 1	–	89	–	68	9	–	–
	Newchurch	Newchurch	par.	146	Ditto „	1	–	88	–	31	–	–	–
	Niton	Niton	par.	146	Ditto „	* 1	–	61	–	51	–	–	–
	Christchurch	Christchurch	par.	148	Christchurch (101)	1	–	51	–	66	8	–	–
	Holdenhurst	Holdenhurst	par.	148	Ditto „	* 1	–	52	–	33	–	–	–
	Bramshaw	Bramshaw, part of	par.	148	New Forest (104)	1	–	100	–	20	–	–	–
	St. Lawrence (Southampton).	St. Lawrence (Southampton).	par.	148	Southampton (105)	* 1	–	95	–	47	–	–	–
	Nursling	Nursling or Nutshalling	par.	150	Romsey (107)	1	–	52	–	59	–	–	–
	Mitchelmersh	Mitchelmersh	par.	150	Ditto „	* 1	–	33	–	32	–	–	–
	Longstock	Longstock	par.	150	Stockbridge (108)	* 1	–	59	–	46	–	–	–
	Bishopstoke	Bishopstoke	par.	150	Winchester (109)	1	–	80	–	69	–	–	–
	St. Mary, Kalender (Winchester).	St. Mary, Kalender (Winchester).	par.	152	Ditto „	1	–	189	–	57	–	–	–
	Bishops Walton	Bishops Walton	par.	152	Droxford (110)	1	–	190	–	59	–	–	–
	Odiham	Odiham	par.	154	Hartley Wintney (115)	1	–	154	–	60	–	–	–
	Basing	Basing	par.	154	Basingstoke (116)	1	–	130	–	109	–	–	–
	Burghclere	Burghclere	par.	158	Kingsclere (119)	1	–	104	–	55	13	–	–
HEREFORD	Yarkhill	Yarkhill	par.	158	Ledbury (346)	–	1	–	54	–	–	30	–
	Eaton Bishop	Eaton Bishop	par.	160	Hereford (348)	* 1	–	63	–	25	–	–	–
	St. John Baptist (Hereford)	St. John Baptist (Hereford)	par.	162	Ditto „	1	–	154	–	78	–	–	–
	Hampton Bishop	Tupsley	tow.	162	Ditto „	1	–	129	–	80	26	–	–
	Orcop	Orcop	par.	162	Ditto „	* 1	–	162	–	78	34	–	–
	Brinsop	Brinsop	par.	162	Weobley (349)	1	–	60	–	24	–	–	–
	Blakemere	Blakemere	par.	162	Ditto „	* 1	–	54	–	24	–	–	–
	Eyton	Eyton	par.	164	Leominster (351)	–	† 1	–	31	–	–	24	–
	Orleton	Orleton	par.	166	Ditto „	* 1	–	104	–	42	6	–	–
	Yarpole	Yarpole	par.	166	Ditto „	* 1	–	130	–	74	–	–	–
HERTFORD	Kelshall	Kelshall	par	170	Royston (140)	–	† 1	–	77	–	–	57	–
	Great Wymondley	Great Wymondley	par.	170	Hitchin (141)	* 1	–	38	–	35	–	–	–
	St. Peter's	St. Peter's	par.	172	St. Albans (144)	1	–	79	–	73	–	–	–
	Flamstead	Flamstead	par.	172	Hemel Hempstead (146)	1	–	90	–	52	–	–	–

HUNTINGDON -	Alwalton - - -	Alwalton - - -	par.	174	Peterborough -	(175)	–	† 1	–	107	–	–	95	–
	Chesterton - - -	Chesterton - - -	par.	174	Ditto - -	„	1	–	38	–	25	–	–	–
	Bury - - - -	Bury - - - -	par.	176	St. Ives - -	(177)	1	–	53	–	20	–	–	–
	Eynesbury - - -	Eynesbury - - -	par.	176	St. Neots - -	(178)	1	–	73	–	79	16	–	–
	Great Paxton - -	Great Paxton - - -	par.	176	Ditto - -	„	1	–	37	–	55	–	–	–
	Great Gransden - -	Great Gransden - -	par.	176	Caxton - -	(185)	1	–	115	–	72	–	–	–
KENT - - -	Greenwich - - -	Greenwich - - -	par.	176	Greenwich - -	(35)	1	–	607	–	356	–	–	–
	Woolwich - - -	Woolwich - - -	par.	176	Ditto - -	„	1	–	75	–	109	–	–	–
	Milton-next-Gravesend	Milton-next-Gravesend	par.	188	Gravesend - -	(51)	1	–	180	–	81	–	–	–
	Stoke - - - -	Stoke - - - -	par.	180	Hoo - - -	(53)	1	–	63	–	18	–	–	–
	Gillingham - - -	Gillingham - - -	par.	180	Medway - -	(54)	1	–	52	–	57	–	–	–
	St. Margaret, Rochester.	St. Margaret, Rochester -	par.	180	Ditto - -	„	1	–	116	–	68	–	–	–
	Aylesford - - -	Aylesford - - -	par.	180	Malling - -	(55)	* 1	–	174	–	49	–	–	–
	East Peckham - -	East Peckham - -	par.	180	Ditto - -	„	(a) –	–	209	–	121	–	–	–
	Tonbridge - - -	Tonbridge - - -	par.	182	Tonbridge - -	(57)	* 1	–	57	–	22	–	–	–
	Maidstone - - -	Maidstone - - -	par.	182	Maidstone - -	(58)	1	–	194	–	108	41	–	–
	Kingsnorth - - -	Kingsnorth - - -	par.	184	West Ashford -	(62)	* 1	–	82	–	41	–	–	–
	Brabourne - - -	Brabourne - - -	par.	184	East Ashford -	(63)	* 1	–	72	–	63	–	–	–
	Bishopsbourne - -	Bishopsbourne - -	par.	184	Bridge - -	(64)	1	–	45	–	45	–	–	–
	Murston - - -	Murston - - -	par.	188	Milton - -	(68)	1	–	35	–	45	–	–	–
	St. Nicholas-at-Wade -	St. Nicholas-at-Wade -	par.	188	Thanet - -	(70)	–	1	–	87	–	–	55	–
	Staple-next-Wingham -	Staple-next-Wingham -	par.	190	Eastry - -	(71)	1	–	67	–	38	–	–	–
	Cheriton - - -	Cheriton - - -	par.	190	Elham - -	(73)	* 1	–	100	–	75	–	–	–
LANCASTER - -	Manchester - - -	Heaton Norris - -	tow.	192	Stockport - -	(452)	1	–	154	–	58	–	–	–
	Liverpool - - -	Liverpool - - -	par.	192	Liverpool - -	(461)	* 1	† 1	485	88	212	–	45	–
	Walton-on-the-Hill -	Bootle-cum-Linacre -	tow.	192	West Derby -	(462)	1	–	517	–	244	–	–	–
	Childwall - - -	Childwall - - -	tow.	192	Ditto - -	„	1	–	405	–	256	–	–	–
	Childwall - - -	Wavertree - - -	tow.	192	Ditto - -	„	(b) –	–	–	–	–	–	–	–
	West Derby - -	West Derby - - -	par.	192	Ditto - -	„	–	1	–	254	–	–	176	–
	Prescot - - -	Ditton - - - -	tow.	194	Prescot - -	(463)	1	–	115	–	63	–	–	–
	Childwall - - -	Little Woolton - -	tow.	194	Ditto - -	„	* 1	–	253	–	191	–	–	–
	Prescot - - -	Rainford - - -	tow.	194	Ditto - -	„	* 1	–	96	–	49	–	–	–
	Prescot - - -	Windle - - - -	tow.	194	Ditto - -	„	1	–	135	–	123	–	–	–
	Bolton-le-Moors - -	Blackrod - - -	tow.	194	Wigan - -	(465)	–	(c) 1	–	99	–	–	–	–
	Wigan - - -	Ince-in-Mackerfield -	tow.	196	Ditto - -	„	2	–	450	–	293	26	–	–
	Wigan - - -	Pemberton - - -	tow.	196	Ditto - -	„	1	–	144	–	72	–	–	–
	Wigan - - -	Wigan - - - -	tow.	196	Ditto - -	„	* 1	–	(d) 224	–	127	12	–	–
	Newton-in-Mackerfield	Newton-in-Mackerfield -	par.	196	Warrington -	(466)	1	–	70	–	31	–	–	–
	Warrington - - -	Rixton-with-Glazebrook -	tow.	196	Ditto - -	„	1	–	90	–	54	–	–	–
	Warrington - - -	Warrington - - -	tow.	196	Ditto - -	„	1	–	80	–	59	–	–	–
	Leigh - - - -	Atherton - - -	tow.	196	Leigh - - -	(467)	1	–	86	–	50	–	–	–
	Leigh - - - -	Bedford - - - -	tow.	196	Ditto - -	„	* 1	–	298	–	71	–	–	–
	Bolton-le-Moors - -	Great Bolton - -	tow.	196	Bolton - -	(468)	1	–	123	–	67	–	–	–
	Deane - - -	Kersley - - - -	tow.	196	Ditto - -	„	1	–	211	–	140	35	–	–
	Deane - - -	Little Halton - - -	tow.	196	Ditto - -	„	1	–	146	–	76	–	–	–

(a) This is a new school, built in lieu of one returned in Parliamentary Paper, No. 114, as having accommodation for 125 children.

(b) The school returned in Parliamentary Paper, No, 114, has since been sold to a railway company.

(c) School but lately erected. No return has been received of the average number of children attending.

(d) This number includes 26, for which number of children additional accommodation has been created by the enlargement of one school; returned in Parliamentary Paper, No. 114.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
LANCASTER—*cont.*	Deane	Rumworth	tow.	198	Bolton (468)	1	–	98	–	78	–	–	–
	Bolton-le-Moors	Sharples	tow.	198	Ditto „	1	–	115	–	84	–	–	–
	Bury	Bury	tow.	198	Bury (469)	(a) 2	–	439	–	224	22	–	–
	Bury	Heap	tow.	198	Ditto „	* 1	–	142	–	112	–	–	–
	Bury	Tottington, Lower End	tow.	198	Ditto „	1	–	150	–	138	57	–	–
	Bury	Walmersley-cum-Shuttleworth.	tow.	198	Ditto „	–	–	(b) 68	–	–	–	–	–
	Eccles	Worsley	tow.	198	Barton-upon-Irwell (470)	1	–	97	–	74	–	–	–
	Manchester	Ardwick	tow.	198	Chorlton (471)	1	–	139	–	77	–	–	–
	Manchester	Chorlton-on-Medlock	tow.	198	Ditto „	2	–	440	–	222	–	–	–
	Manchester	Didsbury	tow.	198	Ditto „	1	–	79	–	30	10	–	–
	Manchester	Hulme	tow.	198	Ditto „	(c) 2	–	1,295	–	859	255	–	–
	Manchester	Broughton	tow.	198	Salford (472)	* 1	–	310	–	118	–	–	–
	Eccles	Pendleton	tow.	198	Ditto „	1	–	(d) 437	–	251	–	–	–
	Manchester	Salford	tow.	198	Ditto „	2	–	(e) 1,206	–	620	–	–	–
	Manchester	Manchester	tow.	200	Manchester (473)	2	† 1	698	198	501	–	87	–
	Manchester	Newton	tow.	200	Ditto „	1	–	88	–	36	–	–	–
	Ashton-under-Lyne	Ashton-under-Lyne	par.	200	Ashton-under-Lyne (474)	(f) 2	–	491	–	354	–	–	–
	Manchester	Denton	tow.	200	Ditto „	1	–	235	–	105	18	–	–
	Manchester	Droylesden	tow.	200	Ditto „	1	–	119	–	76	–	–	–
	Prestwich	Oldham	tow.	200	Oldham (475)	2	–	(g) 444	–	179	–	–	–
	Rochdale	Spotland	tow.	200	Rochdale (476)	2	–	272	–	144	36	–	–
	Rochdale	Wuerdle-with-Wardle	tow.	200	Ditto „	1	–	49	–	61	–	–	–
	Whalley	Higher Booths	tow.	200	Haslingden (477)	1	–	174	–	116	25	–	–
	Whalley	Lower Booths	tow.	200	Ditto „	1	–	146	–	60	29	–	–
	Whalley	Newchurch-in-Rossendale	tow.	200	Ditto „	1	–	160	–	60	16	–	–
	Whalley	Burnley	tow.	200	Burnley (478)	1	–	369	–	97	–	–	–
	Whalley	Habergham Eaves	tow.	202	Ditto „	1	–	158	–	153	–	–	–
	Blackburn	Blackburn	tow.	202	Blackburn (480)	1	–	(h) 867	–	114	–	–	–
	Blackburn	Great Harwood	cha.	202	Ditto „	1	–	199	–	102	34	–	–
	Blackburn	Livesey	tow.	202	Ditto „	1	–	201	–	127	18	–	–
	Blackburn	Rishton	tow.	204	Ditto „	1	–	187	–	96	41	–	–
	Whalley	Yate and Pickup Bank	tow.	204	Ditto „	–	† 1	–	62	–	–	18	–
	Ribchester	Alstone	tow.	204	Preston (482)	–	–	(i) 145	–	–	–	–	–
	Penwortham	Penwortham	tow.	206	Ditto „	1	–	121	–	99	–	–	–
	Preston	Preston	tow.	206	Ditto „	1	–	188	–	95	30	–	–
	Kirkham	Weeton-with-Preese	tow.	206	Fylde (483)	–	† 1	–	65	–	–	48	–

	Warton	Carnforth	tow.	208	Lancaster (485)	1	–	117	–	80	–	–	–
	Cockerham	Ellel	tow.	208	Ditto „	*1	–	340	–	99	–	–	–
	Dalton-in-Furness	Dalton-in-Furness	par.	210	Ulverstone (486)	2	–	850	–	528	19	–	–
Leicester	Theddingworth	Theddingworth, part of	par.	212	Market Harborough (409)	1	–	57	–	28	–	–	–
	Aylestone	Aylestone	tow.	214	Blaby (411)	*1	–	60	–	63	–	–	–
	Blaby	Blaby	par.	214	Ditto „	*1	–	75	–	95	22	–	–
	St. Margaret	Knighton	cha.	216	Ditto „	*1	–	54	–	50	–	–	–
	Oadby	Oadby	par.	216	Ditto „	*1	–	132	–	61	–	–	–
	Ashby-de-la-Zouch	Ashby-de-la-Zouch	tow.	218	Ashby-de-la-Zouch (414)	–	†1	–	153	–	–	145	–
	Whitwick	Whitwick	tow.	218	Ditto „	–	–	(k) 47	–	–	–	–	–
	Queeniborough	Queeniborough	par.	220	Barrow-upon-Soar (416)	–	†1	–	90	–	–	53	–
	St. Mary, Leicester	St. Mary, Leicester	par.	220	Leicester (417)	1	–	77	–	83	–	–	–
	Statherne	Statherne	par.	222	Melton Mowbray (418)	1	–	69	–	59	–	–	–
Lincoln	Morton	Morton	par.	226	Bourn (422)	1	–	108	–	63	–	–	–
	Holbeach	Holbeach	par.	226	Holbeach (424)	*1	–	59	–	44	–	–	–
	Blankney	Blankney	par.	228	Sleaford (426)	1	–	45	–	21	–	–	–
	Hough-on-the-Hill	Hough-on-the-Hill	par.	230	Grantham (427)	1	–	81	–	34	–	–	–
	St. Martin, Lincoln	St. Martin, Lincoln	par.	234	Lincoln (428)	1	–	220	–	128	–	–	–
	Bolingbroke	Bolingbroke	par.	238	Spilsby (430)	–	†1	–	75	–	–	58	–
	Skegness	Skegness	par.	238	Ditto „	–	†1	–	61	–	–	61	–
	Winthorp	Winthorp	par.	240	Ditto „	1	–	46	–	32	–	–	–
	Tealby	Tealby	par.	244	Caistor (432)	–	†1	–	190	–	–	48	–
	Claypole	Claypole	par.	250	Newark (442)	–	–	(l) 93	–	62	–	–	–
B Middlesex	Kensington	Kensington	par.	250	Kensington (1)	–	†1	–	195	–	–	109	–
	Paddington	Paddington	par.	250	Ditto (1)	2	–	283	–	144	–	–	–
	Chelsea	Chelsea	par.	250	Chelsea (2)	1	†1	86	216	122	–	156	–
	St. George	St. George	par.	250	St. George, Hanover-square (3)	1	–	(m) 278	–	190	–	–	–
	St. James	St. James	par.	250	St. James, Westminster (6)	1	–	155	–	106	–	–	–
	St. Mary-le-bone	St. Mary-le-bone	par.	252	St. Mary-le-bone (7)	–	–	(n) 91	–	–	–	–	–
	St. Pancras	St. Pancras	par.	252	St. Pancras (9)	1	†1	(o) 165	180	45	–	47	–
	St. Mary, Islington	St. Mary, Islington	par.	252	Islington (10)	*1	–	(p) 730	–	517	–	–	–
	St. John, Hackney	St. John, Hackney	par.	252	Hackney (11)	*1	–	199	–	80	–	–	–
	St. Giles-in-the-Fields and St. George's, Bloomsbury.	St. Giles-in the-Fields and St. George's, Bloomsbury.	u. p.	252	St. Giles (12)	*1	–	240	–	71	–	–	–

(a) One of these schools was returned in Parliamentary Paper, No. 114, but is now held in a new and larger building.

(b) Additional accommodation.

(c) One of these schools was returned as not receiving annual grants in Parliamentary Paper, No. 114, the other is a new building; additional accommodation for 670 children in a third school has been created, and is here included.

(d) This number includes 316, for which number of children accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

(e) This number includes 385, for which number of children accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

(f) One of these schools was returned as not receiving annual grants, in Parliamentary Paper, No. 114.

(g) This number includes 36, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

(h) This number includes 240, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

(i) Additional accommodation.

(k) Additional accommodation.

(l) School rebuilt.

(m) This number includes 165, for which number of children additional accommodation has been created by the enlargement of a school, returned in Paliamentary Paper, No. 114.

(n) Additional accommodation.

(o) This number includes 43, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

(p) This number includes 141, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867–8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
MIDDLESEX—*contd.*	St. Andrew, Holborn, below the Bars.	St. Andrew, Holborn, below the Bars.	par.	252	West London (18)	1	–	296	–	168	–	–	–
	St. Matthew, Bethnal Green.	St. Matthew, Bethnal Green.	par.	258	Bethnal Green (21)	–	1	–	202	–	–	170	–
	St. Mary, Whitechapel	St. Mary, Whitechapel	par.	258	Whitechapel (22)	2	–	255	–	227	–	–	–
	St. John, Wapping	St. John, Wapping	par.	258	Stepney (24A)	–	†1	–	137	–	–	95	–
		Mile End Old Town	ham.	260	Mile End Old Town (24B)	1	–	(a) 729	–	334	–	–	–
	Bow or St. Mary, Stratford-le-Bow.	Bow or St. Mary, Stratford-le-Bow.	par.	260	Poplar (25)	1	–	189	–	172	–	–	–
	Hampton	Hampton	par.	260	Kingston (47)	–	1	–	50	–	–	45	–
	Feltham	Feltham	par.	260	Staines (132)	(b) 1	–	46	–	37	–	–	–
	Staines	Staines	par.	260	Ditto „	1	–	79	–	31	–	–	–
	Northolt	Northolt	par.	260	Uxbridge (133)	(c) –	–	70	–	39	–	–	–
	Ealing	Ealing	par.	260	Brentford (134)	1	†1	232	56	121	–	87	–
	Twickenham	Twickenham	par.	260	Ditto „	1	–	138	–	91	–	–	–
	Willesden	Willesden	par.	260	Hendon (135)	–	1	–	270	–	–	371	–
	Finchley	Finchley	par.	260	Barnet (136)	2	–	392	–	147	47	–	–
	Fryern Barnet	Fryern Barnet	par.	260	Ditto „	–	1	–	78	–	–	58	–
	Edmonton	Edmonton	par.	262	Edmonton (137)	2	–	165	–	98	–	–	–
	Hornsey	Hornsey	par.	262	Ditto „	1	–	282	–	201	–	–	–
MONMOUTH	Monmouth	Monmouth	par.	262	Monmouth (577)	(d) 2	–	177	–	133	–	–	–
	Penrose	Penrose	par.	264	Ditto „	–	1	–	43	–	–	30	–
	Llanthewy Rytherch	Llanthewy Rytherch	par.	264	Abergavenny (578A)	1	1	79	49	52	–	20	–
	Bedwellty	Bedwellty	par.	264	Bedwellty (578B)	2	–	(e) 337	–	221	24	–	–
	Goytrey	Goytrey	par.	264	Pontypool (579)	1	–	64	–	79	–	–	–
	Trevethin	Trevethin or Trevethan	par.	266	Ditto „	–	†1	–	103	–	–	95	–
	Mynyddslwyn	Mynyddslwyn	par.	266	Newport (580)	1	–	80	–	77	–	–	–
	St. Bride, Wentllooge	St. Bride, Wentllooge	par.	266	Ditto „	*1	–	39	–	32	–	–	–
	St. Mellons	St. Mellons	par.	266	Cardiff (581)	1	–	94	–	51	–	–	–
NORFOLK	Walpole St. Andrew's	Walpole, St. Andrew's	par.	268	Wisbeach (193)	–	†1	–	87	–	–	30	–
	Walpole St. Peter	Walpole, St. Peter	par.	268	Ditto „	1	–	84	–	72	16	–	–
	Great Yarmouth	Great Yarmouth	par.	268	Great Yarmouth (228)	1	–	258	–	158	–	–	–
	Rackheath	Rackheath	par.	274	St. Faiths (233)	1	–	40	–	30	–	–	–

	Lakenham	Lakenham	par.	274	Norwich (234)	–	–	(f) 25	–	–	–	–	–	–	–	–
	St. Clement	St. Clement	par.	274	Ditto „	1	–	125	–	56	–	–	–	–	–	–
	Welborne	Welborne	par.	276	Forehoe (235)	*1	–	50	–	30	–	–	–	–	–	–
	Postwick	Postwick	par.	278	Blofield (237)	1	–	71	–	25	–	–	–	–	–	–
	Ditchingham	Ditchingham	par.	278	Loddon (238)	–	†1	–	102	–	–	51	–	–	–	–
	Toft Monks	Toft Monks	par.	280	Ditto „	–	–	(g) 72	–	–	–	–	–	–	–	–
	Ashwellthorpe	Ashwellthorpe	par.	280	Depwade (239)	–	†1	–	67	–	–	24	–	–	–	–
	Carleton Rode	Carleton Rode	par.	280	Ditto „	–	†1	–	70	–	–	35	–	–	–	–
	Denton	Denton	par.	280	Ditto „	–	†1	–	36	–	–	31	–	–	–	–
	Great Ellingham	Great Ellingham	par.	282	Wayland (241)	–	†1	–	70	–	–	41	–	–	–	–
	Watton	Watton	par.	282	Ditto „	*1	–	96	–	61	11	–	–	–	–	–
	Whissonsett	Whissonsett	par.	284	Mitford (242)	–	–	(h) 131	–	–	–	–	–	–	–	–
	Ingoldsthorpe	Ingoldsthorpe	par.	286	Docking (244)	*1	–	72	–	28	–	–	–	–	–	–
	Congham	Congham	par.	288	Freebridge Lynn (245)	1	–	52	–	30	4	–	–	–	–	–
	Marham	Marham	par.	288	Downham (247)	1	–	74	–	71	–	–	–	–	–	–
NORTHAMPTON	Silverstone	Silverstone	par.	294	Towcester (165)	*1	–	59	–	29	–	–	–	–	–	–
	Passenham	Passenham	par.	294	Potterspury (166)	1	–	98	–	84	–	–	–	–	–	–
	Walgrave	Walgrave	par.	298	Brixworth (170)	1	–	63	–	51	–	–	–	–	–	–
	Irthlingborough	Irthlingborough	par.	298	Wellingborough (171)	*1	–	265	–	79	–	–	–	–	–	–
	Kettering	Kettering	par.	298	Kettering (172)	–	–	(i) 26	–	–	–	–	–	–	–	–
	Ringstead	Ringstead	par.	300	Thrapstone (173)	–	–	(k) 97	–	–	–	–	–	–	–	–
	St. John the Baptist, Peterborough.	St. John the Baptist, Peterborough.	par.	302	Peterborough (175)	–	–	(l) 32	–	–	–	–	–	–	–	–
NORTHUMBERLAND	All Saints	All Saints	par.	304	Newcastle-on-Tyne (552)	1	–	175	–	136	–	–	–	–	–	–
	St. John	St. John	par.	304	Ditto „	1	–	213	–	91	–	–	–	–	–	–
	St. Nicholas	St. Nicholas	par.	304	Ditto „	1	–	(m) 390	–	306	19	–	–	–	–	–
	Earsdon	Seaton Delaval	tow.	306	Tynemouth (553)	*1	–	72	–	53	–	–	–	–	–	–
	Allendale	Allendale	par.	308	Hexham (555)	2	–	345	–	149	–	–	–	–	–	–
	Bywell, St. Peter	Healey	tow.	310	Ditto „	–	1	–	39	–	–	20	–	–	–	–
	Warden	Warden	par.	312	Ditto „	1	–	39	–	52	–	–	–	–	–	–
	Bedlington	Bedlington	par.	314	Morpeth (558)	1	–	96	–	98	–	–	–	–	–	–
	Eglingham	Eglingham	par.	318	Alnwick (559)	1	–	100	–	74	–	–	–	–	–	–
	Berwick-upon-Tweed	Berwick-upon-Tweed	par.	320	Berwick-upon-Tweed (561)	1	–	181	–	197	34	–	–	–	–	–
	Branxton	Branxton	par.	322	Glendale (562)	1	–	65	–	34	–	–	–	–	–	–
NOTTINGHAM	Willoughby-on-the-Wolds.	Willoughby-on-the-Wolds	par.	326	Loughborough (415)	*1	–	73	–	52	–	–	–	–	–	–
	Rampton	Rampton	par.	328	East Retford (435)	1	–	75	–	52	–	–	–	–	–	–
	Worksop	Worksop	par.	328	Worksop (436)	1	–	135	–	218	–	–	–	–	–	–
	Sutton-in-Ashfield	Hucknall-under-Huthwaite.	tow.	330	Mansfield (437)	–	1	–	161	–	–	158	–	–	–	–
	Sutton-in-Ashfield	Sutton-in-Ashfield	tow.	330	Ditto „	1	–	135	–	110	19	–	–	–	–	–

(a) This number includes 454, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(b) This is a department of a school which was returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(c) This is a new school, built in lieu of one returned in Parliamentary Paper, No. 114, as receiving annual grants, and having accommodation for 39 children.
(d) Both these schools were returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(e) This number includes 142, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(f) Additional accommodation.
(g) New buildings.
(h) New building, in lieu of one returned in Parliamentary Paper, No. 114, with accommodation for 43 children.
(i) Additional accommodation.
(k) This represents the accommodation provided in a new building, in lieu of temporary accommodation for 101 children, returned in Parliamentary Paper, No. 114.
(l) Additional accommodation.
(m) A department of this school, with accommodation for 170 children, and having an average attendance of 152 day and 30 night scholars, was returned in Parliamentary Paper, No. 114.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
NOTTINGHAM—*cont^d.*	Annesley	Annesley	par.	330	Basford (438)	1	–	72	–	47	–	–	–
	Bulwell	Bulwell	par.	330	Ditto „	1	–	313	–	173	–	–	–
	Burton Joyce	Burton Joyce	tow.	330	Ditto „	1	–	147	–	75	–	–	–
	Gotham	Gotham	par.	330	Ditto „	1	–	102	–	69	–	–	–
	Greasley	Greasley	par.	330	Ditto „	1	–	106	–	87	–	–	–
	Snenton	Snenton or Sneinton	par.	330	Radford (439)	1	–	(*a*) 160	–	–	–	–	–
	St. Mary, Nottingham	St. Mary, Nottingham	par.	332	Nottingham (440)	2	–	298	–	166	–	–	–
OXFORD	Baldon Toot	Baldon Toot	par.	336	Abingdon (123)	1	–	37	–	19	–	–	–
	Culham	Culham	par.	336	Ditto „	*1	–	76	–	50	–	–	–
	Thame	Thame	par.	340	Thame (156)	1	–	105	–	43	–	–	–
	Cowley	Cowley	par.	340	Headington (157)	1	–	156	–	135	–	–	–
	Headington	Headington	par.	340	Ditto „	1	–	85	–	66	–	–	–
	St. Aldate, Oxford	St. Aldate, Oxford	par.	340	Oxford (158)	–	–	(*b*) 183	–	95	–	–	–
	St. Ebbe, Oxford	St. Ebbe, Oxford	par.	340	Ditto „	–	†1	–	164	–	–	70	–
	Piddington	Piddington	par.	342	Bicester (159)	–	†1	–	67	–	–	32	–
	Standlake	Standlake	par.	344	Ditto „	1	–	88	–	42	–	–	–
	Ascot-under-Wychwood	Ascot-under-Wychwood	par.	346	Chipping Norton (162)	–	†1	–	54	–	–	68	–
	Wroxton	Wroxton	par.	348	Banbury (163)	*1	–	66	–	56	21	–	–
RUTLAND	Langham	Langham	par.	348	Oakham (419)	–	†1	–	46	–	–	35	11
	Whissendine	Whissendine	par.	348	Ditto „	1	–	71	–	59	8	–	–
SALOP	Kinlet	Kinlet	par.	352	Cleobury Mortimer (355)	*1	–	86	–	33	–	–	–
	Morvill	Morvill	par.	354	Bridgnorth (356)	–	†1	–	59	–	–	35	–
	Albrighton	Albrighton	par.	354	Shiffnall (357)	1	–	94	–	52	–	–	–
	Shiffnal	Shiffnal	par.	354	Ditto „	–	–	(*c*) 32	–	–	–	–	–
	Battlefield	Battlefield	par.	356	Atcham (359)	–	†1	–	60	–	–	33	–
	Westbury	Westbury	tow.	356	Ditto „	–	†1	–	102	–	–	69	–
	Shrewsbury, St. Chad	Shrewsbury, St. Chad	par.	356	Shrewsbury (360)	1	–	102	–	131	17	–	–
	Llanymynech	Llanymynech	par.	356	Oswestry (361)	1	–	74	–	41	–	–	–
	Whittington	Whittington	par.	358	Ditto „	1	1	102	51	61	–	45	–
	Whitchurch	Whitchurch	par.	358	Whitchurch (363B)	–	–	(*d*) 95	–	–	–	–	–
	Wellington	Wellington	par.	360	Wellington (365)	1	–	72	–	59	–	–	–
	Newport	Newport	par.	360	Newport (366)	1	–	100	–	107	–	–	–
	Chirbury	Chirbury	par.	360	Montgomery (608)	1	(*e*) 1	84	–	42	–	–	–

Somerset	Rimpton	Rimpton	par.	362	Sherborne (276)	*1	–	29	–	21	5	–	–	–	–
	Withiel Florey	Withiel Florey	par.	362	Williton (313A)	1	–	63	–	35	–	–	–	–	–
	Wootton Courtney	Wootton Courtney	par.	362	Ditto „	–	–	(f) 20	–	–	–	–	–	–	–
	Huish Champflower	Huish Champflower	par.	362	Dulverton (313B)	*1	–	44	–	30	10	–	–	–	–
	Taunton, St. Mary Magdalen.	Taunton, St. Mary Magdalen.	par.	364	Taunton (315)	–	–	(g) 398	–	–	–	–	–	–	–
	Weston Zoyland	Weston Zoyland	par.	366	Bridgewater (316)	*1	–	106	–	72	–	–	–	–	–
	Curry Rivell	Curry Rivell	par.	366	Langport (317)	1	–	73	–	40	8	–	–	–	–
	Somerton	Somerton	par.	368	Ditto „	*1	–	120	–	88	–	–	–	–	–
	Shepton Montague	Shepton Montague	par.	370	Wincanton (320)	1	–	42	–	19	–	–	–	–	–
	Wanstrow	Wanstrow	par.	372	Frome (321)	1	–	57	–	26	–	–	–	–	–
	Camerton	Camerton	par.	374	Clutton (325)	–	–	(h) 186	–	–	–	–	–	–	–
	East Harptree	East Harptree	par.	374	Ditto „	1	–	39	–	37	–	–	–	–	–
	Lyncombe and Widcombe	Lyncombe and Widcombe	par.	376	Bath (326)	1	–	81	–	73	–	–	–	–	–
	Walcot	Walcot	par.	376	Ditto „	–	–	(i) 175	–	–	–	–	–	–	–
	Weston	Weston	par.	376	Ditto „	1	–	65	–	75	–	–	–	–	–
Stafford	Castle Church	Castle Church	par.	378	Stafford (367)	1	–	124	–	149	–	–	–	–	–
	Colwich	Fradswell	tow.	378	Ditto „	–	†1	–	53	–	–	19	–	–	–
	St. Mary and St. Chad	St. Mary and St. Chad	par.	380	Ditto „	1	–	160	–	134	–	–	–	–	–
	Chebsey	Chebsey	tow	380	Stone (368)	1	–	78	–	49	–	–	–	–	–
	Eccleshall	Eccleshall	par.	380	Ditto „	–	1	–	48	–	–	51	–	–	–
	Stone	Stone	par.	380	Ditto „	*1	–	86	–	35	–	–	–	–	–
	Trentham	Trentham	par.	380	Ditto „	–	–	(k) 46	–	–	–	–	–	–	–
	Audley	Audley	par.	380	Newcastle-under-Lyne (369)	1	–	(l) 138	–	87	26	–	–	–	–
	Newcastle-under-Lyne	Newcastle-under-Lyne	par.	380	Ditto „	*1	–	358	–	137	–	–	–	–	–
	Burslem	Burslem	par.	380	Wolstanton (370)	1	–	274	–	172	–	–	–	–	–
	Stoke-upon-Trent	Stoke-upon-Trent	par.	380	Stoke-upon-Trent (371)	*1	1	(m) 413	70	124	58	47	–	–	–
	Leek	Leek and Lowe	tow.	380	Leek (372)	–	–	(n) 36	–	–	–	–	–	–	–
	Norton-in-the-Moors	Norton in-the-Moors	par.	380	Ditto „	1	–	180	–	137	23	–	–	–	–
	Caverswall	Caverswall	par	382	Cheadle (373)	1	–	70	–	66	–	–	–	–	–
	Handley	Newborough	tow.	382	Uttoxeter (374)	1	–	60	–	30	–	–	–	–	–
	Ogley Hay	Ogley Hay	par.	384	Lichfield (377)	1	–	65	–	74	–	–	–	–	–
	Rugeley	Rugeley	par.	384	Ditto „	1	–	65	–	44	–	–	–	–	–
	Wolverhampton	Wolverhampton	tow.	386	Wolverhampton (379)	(o) 2	–	719	–	380	–	–	–	–	–
	Tettenhall	Tettenhall Regis-with-Tettenhall Clericorum.	par.	386	Ditto „	1	–	68	–	60	–	–	–	–	–
	Rushall	Rushall	par.	388	Walsall (380)	–	1	–	184	–	–	128	–	–	–
	Walsall	Walsall Foreign	tow.	388	Ditto „	1	–	(p) 338	–	132	26	–	–	–	–
	Wednesbury	Wednesbury	par.	388	West Bromwich (381)	1	–	(q) 529	–	233	15	–	–	–	–
	West Bromwich	West Bromwich	par.	388	Ditto „	1	–	96	–	156	–	–	–	–	–
	Sedgley	Sedgley	par.	388	Dudley (382)	*1	–	180	–	100	–	–	–	–	–
	Harborne	Harborne	par.	388	Kings Norton (393)	–	†1	(r) 67	160	–	–	119	–	–	–

(a) Additional accommodation.
(b) New building, in lieu of a school, returned in Parliamentary Paper, No. 114, with accommodation for 37 children.
(c) Additional accommodation.
(d) Additional accommodation.
(e) This school, which was returned as receiving annual grants in Parliamentary Paper, No. 114, is now closed.
(f) Additional accommodation.
(g) New building, in lieu of temporary building, returned in Parliamentary Paper, No. 114, as having accommodation for 311 children.
(h) New building, in lieu of temporary building, returned in Parliamentary Paper, No. 114, as having accommodation for 68 children.
(i) New building, in lieu of temporary building, returned in Parliamentary Paper, No. 114, as having accommodation for 198 children.
(k) Additional accommodation.
(l) This number includes 23, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(m) This number includes 260, for which number of children additional accommodation has been provided by the enlargement of two schools, returned in Parliamentary Paper, No. 114.
(n) Additional accommodation.
(o) One of these schools was returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(p) This number includes 152, for which number of children additional accommodation has been provided by the enlargement of two schools, returned in Parliamentary Paper, No. 114.
(q) This number includes 352, being the number of children the new buildings will accommodate. The old school had accommodation for 140 children. Another school has had additional accommodation provided for 67 children.
(r) Additional accommodation in two schools.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW, PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
SUFFOLK	Cowlinge	Cowlinge	par.	390	Risbridge (211)	–	1	–	109	–	–	50	–
	Bacton	Bacton	par.	394	Harshmere (218)	–	†1	–	53	–	–	51	9
	Stradbroke	Stradbroke	par.	396	Hoxne (219)	–	–	(a) 100	–	–	–	–	–
	Barking	Needham Market	ham.	398	Bosmere (220)	1	–	130	–	116	–	–	–
	Brantham	Brantham	par.	398	Samford (221)	–	†1	–	59	–	–	40	–
	Harkstead	Harkstead	par.	398	Ditto „	–	–	(b) 22	–	–	–	–	–
	Shotley	Shotley	par.	398	Ditto „	–	–	(c) 23	–	–	–	–	–
	Rushmere	Rushmere	par.	400	Woodbridge (223)	*1	–	65	–	63	14	–	–
	Cransford	Cransford	par.	402	Plomesgate (224)	*1	–	58	–	28	–	–	–
	Orford	Orford	par.	402	Ditto „	–	–	(d) 18	–	–	–	–	–
	Wickham Market	Wickham Market	par.	402	Ditto „	1	–	109	–	91	–	–	–
	Beccles	Beccles	par.	404	Wangford (226)	(e)	–	310	–	256	–	–	–
	Bradwell	Bradwell	par.	406	Mutford (227)	–	(f) 1	–	72	–	–	40	–
	Kessingland	Kessingland	par.	406	Ditto „	1	–	84	–	54	–	–	–
SURREY	St. Mary, Newington	St. Mary, Newington	par.	408	Newington (30)	1	–	(g) 396	–	115	–	–	–
	St Mary, Lambeth	St. Mary, Lambeth	par.	408	Lambeth (31)	3	–	(h) 712	–	434	–	–	–
	Battersea	Battersea	par.	408	Wandsworth (32)	3	–	(i) 532	–	468	53	–	–
	Clapham	Clapham	par.	408	Ditto „	–	–	(j) 171	–	–	–	–	–
	Putney	Putney	par.	408	Ditto „	1	–	(k) 159	–	219	–	–	–
	Wandsworth	Wandsworth	par.	408	Ditto „	1	–	68	–	118	–	–	–
	St. Giles, Camberwell	St. Giles, Camberwell	par.	408	Camberwell (33)	–	1	(l) 142	296	–	–	190	–
	Carshalton	Carshalton	par.	408	Epsom (37)	–	(m) †1	–	–	–	–	–	–
	Walton-on-Thames	Walton-on-Thames	par.	408	Chertsey (38)	–	–	(n) 111	–	–	–	–	–
	Ockham	Ockham	par.	410	Guildford (39)	–	–	(o) 19	–	–	–	–	–
	Farnham	Farnham	par.	410	Farnham (40)	(p) 2	–	(p) 497	–	230	–	–	–
	Ash	Frimley	par.	410	Ditto „	1	–	136	–	87	–	–	–
	Thursley	Thursley	par.	410	Hambledon (42)	*1	–	68	–	82	12	–	–
	Capel	Capel	par.	410	Dorking (43)	1	–	67	–	55	–	–	–
	Reigate	Reigate	par.	412	Reigate (44)	2	–	166	–	71	–	–	–
	Croydon	Croydon	par.	412	Croydon (46)	1	–	166	–	206	–	–	–
	Woodmansterne	Woodmansterne	par.	412	Ditto „	–	–	(q) 43	–	–	–	–	–
	Kingston	Kingston	par.	412	Kingston (47)	1	–	(r) 394	–	140	–	–	–
	Thames Ditton	Thames Ditton	par.	412	Ditto „	*1	–	143	–	60	–	–	–

	Wimbledon	Wimbledon	par.	412	Ditto	„	1	–	(*s*) 209	–	71	–	–	–	–
	Richmond	Richmond	par.	412	Richmond	(48)	(*t*) –	–	129	–	53	–	–	–	–
	Lingfield	Lingfield	par.	412	East Grinstead	(82)	(*u*) 1	–	104	–	85	–	–	–	–
	Egham	Egham	par.	412	Windsor	(131)	1	–	(*v*) 407	–	92	–	–	–	–
Sussex	Beckley	Beckley	par.	414	Rye	(75)	1	–	119	–	59	–	–	–	–
	Iden	Iden	par.	414	Ditto	„	–	1	–	80	–	–	35	–	–
	Rye	Rye	par.	414	Ditto	„	–	1	–	231	–	–	220	–	–
	St. Clement, Hastings	St. Clement, Hastings	par.	414	Hastings	(76)	–	–	(*w*) 44	–	–	–	–	–	–
	Uckkeld	Fletching	par.	416	Uckfield	(81)	*1	–	100	–	68	13	–	–	–
	Mayfield	Mayfield	par.	416	Ditto	„	–	–	(*x*) 13	–	–	–	–	–	–
	Crawley	Crawley	par.	416	East Grinstead	(82)	1	–	135	–	106	–	–	–	–
	East Grinstead	East Grinstead	par.	416	Ditto	„	1	–	24	–	20	–	–	–	–
	St. Anne or St. Peter, and St. Mary, Lewes.	St. Anne or St. Peter, and St. Mary, Lewes.	par.	418	Lewes	(84)	1	–	24	–	41	–	–	–	–
	Barcombe	Barcombe	par.	418	Ditto	„	1	–	91	–	48	–	–	–	–
	Westmeston	Westmeston	par.	418	Ditto	„	*1	–	50	–	9	–	–	–	–
	Lower Beeding	Lower Beeding	pa. cha.	420	Horsham	(87)	1	–	87	–	47	18	–	–	–
	Slinfold	Slinfold	par.	420	Ditto	„	*1	–	65	–	46	–	–	–	–
	Storrington	Storrington	par.	420	Fakeham	(89)	–	1	–	84	–	–	58	–	–
	Washington	Washington	par.	420	Ditto	„	1	–	66	–	62	–	–	–	–
	Broadwater	Broadwater	par.	420	Worthing	(90)	1	–	178	–	126	–	–	–	–
	St. Pancras	St. Pancras	par.	422	Chichester	(92)	–	–	(*y*) 27	–	–	–	–	–	–
	Rogate	Rogate	par.	424	Midhurst	(93)	1	–	97	–	103	–	–	–	–
Warwick	Birmingham	Birmingham	par.	426	Birmingham	(394)	(*z*) 6	–	(*z*) 1,157	–	880	80	–	–	–
	Aston	Aston	par.	426	Aston	(395)	2	–	(*aa*) 514	–	234	–	–	–	–
	Bickenhill	Bickenhill	par.	426	Meriden	(396)	–	–	(*bb*) 29	–	–	–	–	–	–
	Holy Trinity	Holy Trinity	par.	428	Coventry	(400)	–	–	(*cc*) 21	–	–	–	–	–	–
	Brinklow	Brinklow	par.	428	Rugby	(401)	–	–	(*dd*) 27	–	–	–	–	–	–
	Marton	Marton	par.	428	Ditto	„	–	†1	–	72	–	–	44	–	–
	Loxley	Loxley	par.	432	Stratford-on-Avon	(404)	*1	–	48	–	35	–	–	–	–
	Wootton Wawen	Wootton Wawen	par.	432	Ditto	„	1	–	88	–	59	–	–	–	–
	Burmington	Burmington	par.	432	Shipston-on-Stour	(406)	1	–	38	–	16	–	–	–	–
	Harbury	Harbury	par.	434	Southam	(407)	–	–	(*ee*) 70	–	39	–	–	–	–

(*a*) Through a misprint in Parliamentary Paper, No. 114, the accommodation was returned as 126 instead of 226.
(*b*) Additional accommodation.
(*c*) Additional accommodation.
(*d*) Additional accommodation.
(*e*) New school in lieu of one returned in Parliamentary Paper, No. 114, with accommodation for 69 children.
(*f*) This school was returned as receiving annual grants in Parliamentary Paper, No. 114, with accommodation for 36 children.
(*g*) This number includes 347, for which number of children additional accommodation has been made by the enlargement of three schools returned in Parliamentary Paper, No. 114.
(*h*) This number includes 183, for which number of children additional accommodation has been provided by the enlargement of two schools, returned in Parliamentary Paper, No. 114.
(*i*) This number includes 44, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*j*) Additional accommodation in two schools.
(*k*) This number includes 73, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*l*) Additional accommodation in two schools.
(*m*) This is now a private adventure school.
(*n*) Additional accommodation.
(*o*) Additional accommodation.
(*p*) One of these schools was returned as not receiving annual grants in Parliamentary Paper, No. 114, and the accommodation now returned includes additional space for 221, provided by enlarging a school returned in same Parliamentary Paper.
(*q*) Additional accommodation.
(*r*) This number includes 50, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*s*) This number includes 115, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*t*) To replace a school taken down by railway.
(*u*) This is a department of a school, returned in Parliamentary Paper, No. 114, as not receiving annual grants, with accommodation for 307.
(*v*) This number includes 262, being the number of children which the new buildings will accommodate; the old buildings which they replaced were returned as having accommodation for 108.
(*w*) Additional accommodation.
(*x*) Additional accommodation.
(*y*) Additional accommodation.
(*z*) Two of these schools were returned in Parliamentary Paper, No. 114, as not receiving annual grants, and 119 of the number returned as accommodation represents the enlargement of schools previously returned.
(*aa*) This number includes 167, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*bb*) Additional accommodation.
(*cc*) Additional accommodation.
(*dd*) Additional accommodation.
(*ee*) Additional accommodation.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867–8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
										Day.	Night.	Day.	Night.
ENGLAND—*continued.*													
WESTMORLAND -	Kirkby Thore - -	Kirkby Thore - -	tow.	436	East Ward - - (573)	1	–	45	–	24	–	–	–
	Long Marton - -	Long Marton - - -	par.	436	Ditto - - „	–	–	(*a*) 17	–	–	–	–	–
	Heversham - - -	Heversham - with - Milnethorpe.	tow.	438	Kendal - - (575)	1	–	74	–	72	–	–	–
	Kendal - - -	Kendal or Kirby Kendal	tow.	438	Ditto - - „	*1	–	184	–	92	–	–	–
	Kirkby Lonsdale - -	Kirkby Lonsdale - -	tow.	438	Ditto - - „	–	–	(*b*) 58	–	–	–	–	–
WILTS - - -	Highworth - - -	Highworth - - -	par.	440	Highworth - - (250)	–	–	(*c*) 199	–	–	–	–	–
	Wootton Bassett - -	Wootton Bassett - -	par.	442	Cricklade - - (251)	–	–	(*d*) 52	–	–	–	–	–
	Crudwell - - -	Crudwell - - -	par.	442	Malmesbury - (252)	–	†1	–	50	–	–	32	–
	Laycock - - -	Laycock - - -	par.	442	Chippenham - (253)	–	–	(*e*) 246	–	–	–	–	–
	Calne - - - -	Calne - - - -	par.	444	Calne - - (254)	–	1	–	102	–	–	70	–
	Broadhinton - -	Broadhinton - - -	par.	444	Marlborough - (255)	*1	–	80	–	31	9	–	–
	Bromham - - -	Bromham - - -	par.	444	Devizes - - (256)	–	(*f*) 2	–	192	–	–	118	–
	Melksham - - -	Seend - - - -	cha.	446	Melksham - - (257)	1	–	60	–	56	–	–	–
	Trowbridge - -	Trowbridge - - -	par.	446	Ditto - - „	–	†1	–	115	–	–	45	–
	Broughton Giffard -	Broughton Giffard - -	par.	446	Bradford-on-Avon (258)	*1	–	54	–	83	–	–	–
	Fisherton Anger - -	Fisherton Anger - -	par.	450	Alderbury - - (263)	1	–	(*g*) 474	–	63	–	–	–
	Britford - - -	Britford - - - -	par.	450	Ditto - - „	–	–	(*h*) 25	–	–	–	–	–
	Alderbury - - -	Pitton and Farley - -	cha.	450	Ditto - - „	–	1	–	71	–	–	63	–
	Long Newnton - -	Long Newnton - -	par.	452	Tetbury - - (339)	–	†1	–	68	–	–	27	–
WORCESTER - -	Dudley - - -	Dudley - - - -	par.	454	Dudley - - (382)	–	–	(*i*) 184	–	65	–	–	–
	Halesowen - - -	Cradley - - - -	tow.	454	Stourbridge - - (383)	1	–	150	–	70	–	–	–
	Ribbesford - -	Bewdley - - -	bor.	456	Kidderminster - (384)	–	†1	–	140	–	–	51	–
	Leigh - - -	Leigh - - - -	par.	456	Martley - - (386)	1	–	63	–	74	–	–	–
	St. Martin, Worcester -	St. Martin, Worcester -	par.	458	Worcester - - (387)	–	–	(*j*) 59	–	–	–	–	–
	Castle Morton - -	Castle Morton - -	par.	458	Upton-on-Severn - (388)	*1	–	58	–	26	–	–	–
	Eldersfield - - -	Eldersfield - - -	par.	458	Ditto - - „	–	†1	–	51	–	–	18	–
	Great Malvern - -	Great Malvern - -	par.	458	Ditto - - „	*1	–	81	–	90	–	–	–
	Norton-by-Kempsey -	Norton-by-Kempsey -	par.	460	Pershore - - (390)	1	–	75	–	53	10	–	–
	Claines - - -	Claines - - - -	par.	462	Droitwich - - (391)	–	–	(*k*) 65	–	74	–	–	–
	Dodderhill - - -	Dodderhill - - -	par.	462	Ditto - - „	*1	–	68	–	49	–	–	–
	Blockley - - -	Blockley - - -	par.	464	Shipston-on-Stour (406)	–	–	(*l*) 191	–	–	–	–	–

York	Slaidburn	Newton	tow.	464	Clitheroe (479)	–	†1	–	178	–	–	36	–	
	Sedbergh	Dent	tow.	464	Sedbergh (487)	1	–	54	–	37	–	–	–	
	Broughton	Broughton	tow.	466	Skipton (489)	–	†1	–	48	–	–	23	–	
	Skipton	Skipton or Skipton-on-Craven.	tow.	468	Ditto „	–	–	(*m*)130	–	–	–	–	–	
	Ripon	High and Low Bishopside	tow	468	Pateley Bridge (490)	–	–	(*n*)31	–	–	–	–	–	
	Acomb	Acomb	tow.	472	Great Ouseburn (492 A)	–	–	(*o*)28	–	–	–	–	–	
	Pannal	Pannal	par.	474	Knaresborough (492 B)	–	†1	–	110	–	–	58	–	
	Spofforth	Wetherby	tow.	474	Wetherby (492 C)	*1	–	165	–	62	–	–	–	
	Guiseley	Rawden	tow.	476	Otley (493 A)	1	–	137	–	56	–	–	–	
	Guiseley	Yeadon	tow.	476	Wharfdale (493 B)	1	–	197	–	75	–	–	–	
	Bingley	Bingley-with-Micklethwaite	tow.	478	Keighley (494)	1	–	144	–	89	–	–	–	
	Huddersfield	Hudddersfield	tow.	478	Huddersfield (497)	–	–	(*p*)73	–	–	–	–	–	
	Huddersfield	Longwood	tow.	478	Ditto „	*1	–	121	–	80	–	–	–	
	Almondbury	Meltham	tow.	478	Ditto „	1	–	(*q*)435	–	281	19	–	–	
	Huddersfield	Slaithwaite	tow.	478	Ditto „	–	–	(*r*)85	–	–	–	–	–	
	Halifax	Barkisland	tow.	480	Halifax (498)	–	1	–	176	–	–	89	–	
	Halifax	Halifax	tow.	480	Ditto „	–	–	(*s*)551	–	150	–	–	–	
	Halifax	North Owram	tow.	480	Ditto „	–	–	(*t*) 226	–	–	–	–	–	
	Halifax	Rastrick	tow.	480	Ditto „	1	–	162	–	97	–	–	–	
	Bradford	Bradford	tow.	480	Bradford (499)	–	–	(*u*) 312	–	35	–	–	–	
	Bradford	Horton	tow.	480	Ditto „	1	†1	321	118	237	93	40	36	
	Bradford	Eccleshall	tow.	480	Ditto „	–	–	(*v*) 38	–	–	–	–	–	
	Birstall	Unsworth	tow.	480	Ditto „	–	†1	–	107	–	–	22	15	
	Calverley	Idle	tow.	480	Ditto „	–	–	(*w*) 50	–	–	–	–	–	
	Bradford	Thornton	tow.	480	Ditto „	–	–	(*x*) 54	–	–	–	–	–	
	Batley	Gildersome	tow.	480	Hunslet (500)	1	–	144	–	74	–	–	–	
	Leeds	Headingley-cum-Birley	tow.	480	Ditto „	–	–	(*y*) 13	–	–	–	–	–	
	Thorner	Shadwell	tow.	482	Ditto „	*1	–	34	–	36	–	–	–	
	Leeds	Leeds	tow.	482	Leeds (501)	1	–	(*z*) 635	–	200	–	–	–	
	Batley	Batley	tow.	482	Dewsbury (502)	–	–	(*aa*) 114	–	125	95	–	–	
	Batley	Morley	tow.	482	Ditto „	1	–	208	–	107	31	–	–	
	Normanton	Normanton	tow.	482	Wakefield (503)	1	–	87	–	118	–	–	–	
	Wakefield	Alverthorpe-with-Thornes	tow.	482	Ditto „	–	–	(*bb*) 98	–	113	–	–	–	
	Kippax	Allerton Bywater	tow.	484	Pontefract (504 A)	1	–	92	–	76	–	–	–	

(*a*) Additional accommodation.
(*b*) Additional accommodation.
(*c*) Additional accommodation.
(*d*) Additional accommodation.
(*e*) In lieu of a school, returned in Parliamentary Paper, No. 114, with accommodation for 114.
(*f*) One of these schools was returned in Parliamentary Paper, No. 114, as receiving annual grants.
(*g*) This number includes 294, being the number of children a new building will accommodate. The old building was returned in Parliamentary Paper, No. 114, with accommodation for 184.
(*h*) Additional accommodation.
(*i*) Additional department of a school, returned as receiving annual grants in Parliamentary Paper, No. 114.
(*j*) Additional accommodation.
(*k*) Additional accommodation.
(*l*) New buildings in lieu of school, returned in Parliamentary Paper, No. 114, as receiving annual grants, and having accommodation for 121 children.
(*m*) Additional accommodation.
(*n*) Additional accommodation.
(*o*) Additional accommodation.
(*p*) Additional accommodation.
(*q*) This number includes 368, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*r*) Additional accommodation.
(*s*) Additional accommodation in two schools.
(*t*) Additional accommodation.
(*u*) Additional accommodation.
(*v*) Additional accommodation.
(*w*) Additional accommodation.
(*x*) Additional accommodation.
(*y*) Additional accommodation.
(*z*) This number includes 307, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(*aa*) Additional accommodation.
(*bb*) Additional accommodation.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued*.

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
										In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	Day.	Night.	Day.	Night.
ENGLAND—*continued*													
YORK—*continued*.	Silkstone	Barnsley	tow.	486	Barnsley (505)	1	–	(*a*) 468	–	81	–	–	–
	Darfield	Worsborough	tow.	486	Ditto „	–	–	(*b*) 196	–	–	–	–	–
	Ecclesfield	Ecclesfield	tow.	486	Wortley (506)	1	–	150	–	107	–	–	–
	Penistone	Penistone	tow.	488	Ditto „	1	–	93	–	38	33	–	–
	Sheffield	Brightside Bierlow	tow.	488	Sheffield (508)	1	–	405	–	481	–	–	–
	Handsworth	Handsworth	par.	488	Ditto „	(*c*) 3	–	403	–	344	42	–	–
	Sheffield	Sheffield	tow.	488	Ditto „	2	–	671	–	481	–	–	–
	Aston-with-Aughton	Aston-with-Aughton	tow.	488	Rotherham (509)	–	†1	–	110	–	–	47	–
	Rawmarsh	Rawmarsh	par.	488	Ditto „	1	–	260	–	149	–	–	–
	Blyth	Bawtry	tow.	490	Doncaster (510)	–	–	(*d*) 65	–	21	–	–	–
	Tickhill	Tickhill	tow.	492	Ditto „	1	–	97	–	56	–	–	–
	Snaith	Goole	tow.	492	Goole (512)	–	–	(*e*) 24	–	–	–	–	–
	Barwick-in-Elmet	Barwick-in-Elmet	tow.	494	Tadcaster (514)	–	–	(*f*) 84	–	–	–	–	–
	Tadcaster	West Tadcaster	tow.	496	Ditto „	1	–	93	–	71	–	–	–
	St. Sampson	St. Sampson (York)	par.	498	York (515)	1	–	62	–	40	–	–	–
	Fangfoss	Fangfoss	par.	500	Pocklington (516)	–	–	(*g*) 83	–	33	–	–	–
	Kilmivick	Beswick	tow.	502	Beverley (518)	*1	–	72	–	46	–	–	–
	Cherry Burton	Cherry Burton	par.	504	Ditto „	1	–	49	–	31	–	–	–
	Lund	Lund	par.	504	Ditto „	1	–	82	–	44	–	–	–
	St. Martin, Beverley	St. Martin, Beverley	par.	504	Ditto „	–	–	(*h*) 29	–	–	–	–	–
	Sculcoates	Sculcoates	par.	504	Sculcoates (519)	1	–	310	–	92	–	–	–
	Sigglesthorne	Sigglesthorne	tow.	508	Skirlaugh (522)	–	–	(*i*) 86	–	–	–	–	–
	Swine	Swine	tow.	508	Ditto „	–	1	–	66	–	–	33	–
	Weaverthorpe	Weaverthorpe	tow.	510	Driffield (523)	–	–	(*j*) 27	–	–	–	–	–
	Thwing	Thwing	par.	510	Bridlington (524)	1	–	49	–	39	6	–	–
	Acklam	Acklam-with-Barthorpe	tow.	512	Malton (526)	–	1	–	49	–	–	41	–
	Alne	Alne	tow.	514	Easingwold (527)	1	–	45	–	47	–	–	–
	Whenby	Whenby	par.	516	Ditto „	1	–	71	–	26	–	–	–
	Leake	Knayton-with-Brawith	tow.	516	Thirsk (528)	1	–	40	–	36	–	–	–
	Ampleforth	Ampleforth, St. Peter	tow.	518	Helmsley (529)	–	–	(*k*) 13	–	–	–	–	–
	Lastingham	Farndale, East Side	tow.	520	Ditto „	–	†1	–	55	–	–	18	–

	Guisborough	Guisborough	tow.	522	Guisborough - (532)	–	–	(*l*) 45	–	36	–	–	–
	Kirk Leatham	Kirk Leatham	tow.	522	Ditto - - „	–	–	(*m*) 55	–	–	–	–	–
	Lofthouse or Loftus	Lofthouse or Loftus	par.	522	Ditto - - „	1	–	70	–	56	–	–	–
	Skelton	Skelton	tow.	522	Ditto - - „	1	–	94	–	69	–	–	–
	East Harlsey	East Harlsey	par.	524	Northallerton - (534)	1	–	39	–	28	–	–	–
	Welbury	Welbury	par.	524	Ditto - - „	–	†1	–	32	–	–	25	–
	Burneston	Burneston	tow.	526	Bedale - - (535)	*1	–	70	–	49	–	–	–
	Richmond	Richmond	par.	530	Richmond - (539)	–	–	(*n*) 91	–	82	–	–	–
	Middlesborough	Middlesborough	tow.	532	Stockton - - (541 A)	1	–	205	–	117	–	–	–
WALES:													
ANGLESEY	St. Peter, Newborough	St. Peter, Newborough	par.	532	Carnarvon - - (620)	1	–	144	–	81	–	–	–
	Llanddona	Llanddona	par.	532	Bangor - - (621)	–	1	–	135	–	–	60	–
	Llanfihangel Esciefiog	Llanfihangel Esceifiog	par.	532	Ditto - - „	–	†2	–	180	–	–	121	–
	Llanerchymedd	Llanerchymedd	par.	534	Anglesey - - (623)	(*o*)	–	–	–	–	–	–	–
BRECKNOCK	Ystradgunlais	Lower Ystradgunlais	div.	536	Neath - - (584)	–	–	(*p*) 56	–	–	–	–	–
	Llanwrtyd	Llanwrtyd	par.	536	Llandovery - (587)	1	–	96	–	60	–	–	–
	Cantreff and Nantddw	Cantreff and Nantddw	par.	536	Brecknock - - (600)	1	–	36	–	10	–	–	–
	Crickhowell	Crickhowell	par.	538	Crickhowell - (601)	1	–	129	–	76	–	–	–
	Llanelly	Llanelly	par.	538	Ditto - - „	1	–	108	–	103	–	–	–
CARDIGAN	Verwick	Verwick	par.	540	Cardigan - - (593)	1	–	44	–	36	–	–	–
	Llandyssil	Llandyssil	par.	540	Newcastle-in-Emlyn (594)	*1	–	60	–	48	–	–	–
	Llangranog	Llangranog	par.	540	Ditto - - „	1	–	53	–	54	–	–	–
	Llanwenog	Llanwenog	par.	540	Lampeter - - (595)	–	1	–	68	–	–	47	–
	Llanfihangel-geneur-glyn.	Cenlan-y-Maes-mawr	tow.	540	Aberystwith - (597)	–	–	(*q*) 62	–	–	–	–	–
	Llanfihangel-geneur-glyn.	Cyfoeth-y-Brenin	tow.	540	Ditto - - „	*1	–	56	–	59	–	–	–
CARMARTHEN	Llanelly	Llanelly	par.	544	Llanelly - - (586)	1	–	(*r*) 370	–	184	–	–	–
	Cilycwm	Cilycwm	par.	544	Llandovery - (587)	*1	–	105	–	59	–	–	–
	Llangadock	Llangadock	par.	544	Ditto - - „	1	–	86	–	55	–	–	–

(*a*) This number includes 378, for which number of children additional accommodation has been provided by the enlargement of two schools, returned in Parliamentary Paper, No. 114.
(*b*) New buildings in lieu of those returned in Parliamentary Paper, No. 114, as having accommodation for 178 children.
(*c*) One of those schools, with accommodation for 119 children, was returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(*d*) Additional accommodation.
(*e*) Additional accommodation.
(*f*) New buildings, in lieu of buildings returned in Parliamentary Paper, No. 114, as having accommodation for 88 children.
(*g*) New buildings, in lieu of buildings returned in Parliamentary Paper, No. 114, as having accommodation for 36 children.
(*h*) Additional accommodation.
(*i*) New buildings, in lieu of buildings returned in Parliamentary Paper, No. 114, as having accommodation for 60 children.
(*j*) Additional accommodation.
(*k*) Additional accommodation.
(*l*) Additional accommodation.
(*m*) Additional accommodation.
(*n*) Additional accommodation.
(*o*) A school returned in this parish, in Parliamentary Paper, No. 114, is now closed.
(*p*) Additional accommodation.
(*q*) Additional accommodation.
(*r*) This number represents the accommodation for 240 children, in a school which was returned as closed; and new buildings having accommodation for 130 children, in lieu of 88, returned in Parliamentary Paper, No. 114.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued.*

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867–8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
										In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	Day.	Night.	Day.	Night.
WALES—*continued.*													
CARMARTHEN - (*continued*)	Bettws - - -	Bettws - - - -	par.	544	Llandilofawr - (588)	–	–	(*a*) 130	–	–	–	–	–
	Llandilofawr -	Llandilofawr - - -	par.	544	Ditto - - „	1	–	58	–	56	–	–	–
	Llanarthney - -	Llanarthney - - -	par.	544	Carmarthen - (589)	1	–	125	–	56	–	–	–
	Llanwinio - - -	Llanwinio - - -	par.	544	Ditto - - „	1	–	77	–	88	30	–	–
	Llanboidy - - -	Llanboidy - - -	par.	546	Narberth - - (590)	1	–	63	–	54	–	–	–
	Llangan - - -	Llangan - - -	par.	546	Ditto - - „	1	(*b*) 1	–	–	–	–	–	–
CARNARVON - -	Llanbeblig - - -	Llanbeblig - - -	par.	548	Carnarvon - - (620)	*1	–	128	–	77	–	–	–
	Bangor - - -	Bangor - - - -	par.	548	Bangor - - (621)	–	–	(*c*) 83	–	74	–	–	–
	Caerhûn - - -	Caerhûn - - -	par.	548	Conway - - (622)	–	†1	–	60	–	–	30	–
DENBIGH - -	Chirk - - -	Chirk - - - -	par.	550	Oswestry - - (361)	1	–	91	–	49	–	–	–
	Wrexham - - -	Bersham - - -	tow.	550	Wrexham - - (611)	–	1	–	260	–	–	(*d*)	–
	Gresford - - -	Burton - - - -	tow.	550	Ditto - - „	–	–	(*e*) 26	–	–	–	–	–
	Wrexham - - -	Wrexham Regis - -	tow.	550	Ditto - - „	1	–	33	–	63	–	–	–
	Llanfair-Dyffryn-Clwyd	Llanfair-Dyffryn-Clwyd -	par.	552	Ruthin - - (612)	1	–	135	–	122	–	–	–
	Bettws - yn - Rhos or Bettws Abergele.	Bettws-yn-Rhos or Bettws Abergele.	par.	552	St. Asaph - - (613)	–	†1	–	72	–	–	32	–
	Llanefydd - - -	Llanefydd - - -	par.	552	Ditto - - „	1	–	72	–	34	–	–	–
	St. George - -	St. George - - -	par.	552	Ditto - - „	1	–	119	–	65	–	–	–
	Llangerniew - -	Llangerniew - - -	par.	552	Llanrwst - - (614)	–	–	(*f*) 19	–	–	–	–	–
	Llansaintffraid - glyn - ceiriog.	Llansaintffraid-glyn-ceiriog	par.	552	Corwen - - (615)	1	–	70	–	40	–	–	–
	Llanelian - - -	Llanelian - - -	par.	552	Conway - - (622)	1	–	69	–	39	–	–	–
FLINT - - -	Overton - - -	Overton - - -	par.	554	Ellesmere - - (362)	1	–	146	–	83	–	–	–
	Hawarden - - -	Hawarden - - -	par.	554	Great Boughton - (459)	(*g*) 2	–	178	–	127	–	–	–
	Holywell - - -	Holywell - - -	par.	554	Holywell - - (610)	1	–	317	–	247	–	–	–
	Northop - - -	Northop - - -	par.	554	Ditto - - „	–	–	(*h*) 51	–	–	–	–	–
	Rhuddlan - - -	Rhuddlan - - -	par.	554	St. Asaph - - (613)	–	†1	–	210	–	–	86	12

Glamorgan	Llandaff	Llandaff	par.	556	Cardiff	(581)	1	–	(i) 108	–	75	–	–	–	–	–	–	–	–	–	–	–	–
	Llanishen	Llanishen	par.	556	Ditto	„	1	–	97	–	55	–	–	–	–	–	–	–	–	–	–	–	–
	Pendoyland	Pendoyland	par.	556	Ditto	„	1	–	44	–	48	–	–	–	–	–	–	–	–	–	–	–	–
	Eglwysilian	Eglwysilian	par.	556	Ditto	„	1	1	77	121	95	–	123	–	–	–	–	–	–	–	–	–	–
	Llantrisaint	Llantrisaint	par.	556	Ditto	„	–	–	(j) 298	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	St. John, Cardiff	St. John, Cardiff	par.	556	Ditto	„	1	–	(k) 191	–	98	–	–	–	–	–	–	–	–	–	–	–	–
	St. Mary, Cardiff	St. Mary, Cardiff	par.	556	Ditto	„	1	–	(l) 286	–	384	–	–	–	–	–	–	–	–	–	–	–	–
	Aberdare	Aberdare	par.	556	Merthyr Tydfil	(582)	(m) 2	–	(m) 222	–	379	41	–	–	–	–	–	–	–	–	–	–	–
	Gelligaer	Gelligaer	par.	556	Ditto	„	1	–	(n) 171	–	128	–	–	–	–	–	–	–	–	–	–	–	–
	Merthyr Tydfil	Merthyr Tydfil	par.	556	Ditto	„	3	1	(o) 609	804	429	18	718	–	–	–	–	–	–	–	–	–	–
	Llanwonno	Llanwonno	par.	556	Ditto	„	1	–	(p) 120	–	37	–	–	–	–	–	–	–	–	–	–	–	–
	Ystradyfodwg	Ystradyfodwg	par.	556	Ditto	„	2	–	115	–	171	14	–	–	–	–	–	–	–	–	–	–	–
	Llangonoyd	Llangonoyd	ham.	558	Bridgend	(583)	*1	–	248	–	333	–	–	–	–	–	–	–	–	–	–	–	–
	Coyty	Coyty, Lower	ham.	558	Ditto	„	1	–	92	–	69	–	–	–	–	–	–	–	–	–	–	–	–
	Llansamlet	Llansamlet, Higher	ham.	560	Neath	(584)	–	–	(q) 57	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Llangwick	Llangwick	par.	560	Ditto	„	1	–	100	–	79	–	–	–	–	–	–	–	–	–	–	–	–
	Llansamlet	Lower Llansamlet	ham.	560	Ditto	„	1*	–	88	–	73	–	–	–	–	–	–	–	–	–	–	–	–
	Michaelstone super Avon.	Lower Michaelstone	ham.	560	Ditto	„	–	–	(r) 180	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Margam	Margam	par.	560	Ditto	„	1	–	304	–	346	–	–	–	–	–	–	–	–	–	–	–	–
	Llangafelach	Clase	ham.	560	Swansea	(585 A)	1	–	101	–	67	–	–	–	–	–	–	–	–	–	–	–	–
Merioneth	Corwen	Corwen	par.	562	Corwen	(615)	–	–	(s) 123	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Llanfor	Llanfor	par.	562	Bala	(616)	1	–	76	–	29	–	11	–	–	–	–	–	–	–	–	–	–
	Llangelynin	Llangelynin	par.	562	Dolgelly	(617)	–	†1	–	47	–	–	–	–	–	–	–	–	–	–	–	–	–
	Mallwyd	Mallwyd	par.	562	Ditto	„	*1	–	117	–	90	–	–	–	–	–	–	–	–	–	–	–	–
	Festiniog	Festiniog	par.	562	Festiniog	(618)	1	–	156	–	86	–	–	–	–	–	–	–	–	–	–	–	–
Montgomery	Cemmes	Cemmes	par.	564	Machynlleth	(606)	–	–	(t) 76	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Llanwrin	Llanwrin	par.	564	Ditto	„	–	†1	–	53	–	–	31	–	–	–	–	–	–	–	–	–	–
	Llanidloes	Llanidloes	par.	564	Newtown	(607)	1	–	210	–	107	–	–	–	–	–	–	–	–	–	–	–	–
	Llanwnog	Llanwnog	par.	564	Ditto	„	1	–	131	–	103	–	–	–	–	–	–	–	–	–	–	–	–
	Berriew	Berriew	par.	564	Montgomery	(608)	–	†2	–	207	–	–	93	–	–	–	–	–	–	–	–	–	–
	Church Stoke	Church Stoke	par.	564	Ditto	„	–	–	(u) 32	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Buttington	Trewern	tow.	564	Ditto	„	1	–	71	–	48	11	–	–	–	–	–	–	–	–	–	–	–
	Garthbeibio	Garthbeibio	par.	564	Llanfyllin	(609)	–	–	(v) 21	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Llansaintffraid	Pool	div.	566	Ditto	„	1	–	56	–	63	–	–	–	–	–	–	–	–	–	–	–	–

(a) New school, in lieu of one returned in Parliamentary Paper, No. 114, as having accommodation for 96.
(b) School closed.
(c) Additional accommodation.
(d) No return of average attendance.
(e) Additional accommodation.
(f) Additional accommodation.
(g) One of these schools was returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(h) Additional accommodation.
(i) This number includes 21, for which number of children additional accommodation has been created by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(j) New buildings, in lieu of buildings returned in Parliamentary Paper, No. 114, with accommodation for 153.
(k) This number includes 23, for which number of children additional accommodation has been provided by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(l) This number includes 102, for which number of children additional accommodation has been provided by the enlargement of a school returned in Parliamentary Paper, No. 114.
(m) One of these schools was returned in Parliamentary Paper, No. 114, as not receiving annual grants.
(n) This number includes 136, for which number of children additional accommodation has been provided, by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(o) This number includes 145, for which number of children additional accommodation has been provided, by the enlargement of a school, returned in Parliamentary Paper, No. 114.
(p) This number includes 71, for which number of children additional accommodation has been provided, by the enlargement of schools, returned in Parliamentary Paper, No. 114.
(q) Additional accommodation.
(r) New buildings, in lieu of a school returned in Parliamentary Paper, No. 114, as having accommodation for 137 children.
(s) New school, in lieu of one returned in Parliamentary Paper, No. 114, as having accommodation for 135.
(t) New buildings, in lieu of those returned in Parliamentary Paper, No. 114, as having accommodation for 52 children.
(u) Additional accommodation.
(v) Additional accommodation.

RETURN showing the Parishes in which Alterations have been made in respect of Number or Accommodation of Schools aided by Parliamentary Grants, &c.—*continued*.

COUNTY.	ORIGINAL OR MOTHER PARISH.	POOR LAW PARISH, TOWNSHIP, OR PLACE.		Page of Parliamentary Paper, No. 114, Sess. 1867-8, in which the Parish is returned.	District or Union in Census Tables.	Schools aided by Parliamentary Grants.							
						Number of Schools.		Accommodation at 10 Square Feet per Child.		Average Attendance.			
										In Schools receiving Annual Grants.		In Schools *not* receiving Annual Grants.	
						Receiving Annual Grants.	Not receiving Annual Grants.	In Schools receiving Annual Grants.	In Schools *not* receiving Annual Grants.	Day.	Night.	Day.	Night.
WALES—*continued*.													
PEMBROKE	Narberth	South Narberth	div.	566	Narberth (590)	*1	–	73	–	75	16	–	–
	Redberth	Redberth	par.	568	Pembroke (591)	–	–	(*a*) 20	–	–	–	–	–
	Freystrop	Freystrop	par.	568	Haverfordwest (592)	1	–	68	–	38	–	–	–
	Steynton	Steynton	par.	570	Ditto „	1	–	62	–	53	–	–	–
	Bayvill	Bayvill	par.	570	Cardigan (593)	1	–	65	–	44	–	–	–
	Moylgrove	Moylgrove	par.	572	Ditto „	–	–	(*b*) 85	–	–	–	–	–
	St. Dogmells	St. Dogmells	par.	572	Ditto „	1	–	112	–	112	–	–	–
RADNOR	Disserth	Disserth and Trecoed	ham. and div.	572	Builth (599)	1	1	40	54	31	–	(*c*)	–
	Llowes	Llowes	par.	572	Hay (602)	1	–	44	–	19	–	–	–
	Presteign	Presteign	par.	574	Presteign (603)	2	–	164	–	112	–	–	–
	Llanyre	Llanyre	par.	574	Rhayader (605)	1	–	78	–	67	–	–	–

(*a*) Additional accommodation.
(*b*) New school, in lieu of one returned in Parliamentary Paper, No. 114, as having accommodation for 19 children.
(*c*) No return of average attendance.

PARISHES.

RETURN showing the Parishes in which Alterations have been made in respect of the Number or Accommodation of Schools aided by Parliamentary Grants, giving the Average Attendance in each New or Altered School, completed to the 31st day of December 1868 (in continuation of Parliamentary Paper, No. 114, of Session 1867–8).

(*Lord Robert Montagu.*)

Ordered, by The House of Commons, *to be Printed*,
6 *April* 1869.

Under 3 *oz.*

PUBLIC EDUCATION.

RETURN to an Address of the Honourable The House of Commons, dated 15 March 1869;—*for*,

"COPIES of ACCOUNTS of the SUMS Expended out of the MONIES Voted by PARLIAMENT for PUBLIC EDUCATION in *England* and *Wales*, between the 31st day of March 1858 and the 1st day of April 1868:"

"So far as can be Given or Estimated, of the SUMS Derived from SUBSCRIPTIONS, SCHOOL PENCE, or other Sources, and Spent in connection with the Monies Voted as above by Parliament:"

"And, Similar Accounts for *Scotland*."

ENGLAND AND WALES.

Sums Expended out of Monies Voted by Parliament in Years ending 31st March.		Sums Derived from			
Year.	Amount.	Subscriptions.	School Pence.	Other Sources.	Total.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
1859 - -	609,072 6 9	458,151 10 10*	229,474 8 1	100,835 17 5	788,461 16 4
1860 - -	615,377 11 3	497,051 19 4*	263,529 9 6	108,920 18 2	869,502 7 –
1861 - -	664,382 14 1	486,116 5 1*	279,617 15 8	122,905 7 10	888,639 8 7
1862 - -	700,700 12 –	476,868 2 5	286,217 18 10	134,255 18 1	897,341 19 4
1863 - -	668,120 12 6	436,206 9 6	296,367 10 7	132,877 6 10	865,451 6 11
1864 - -	584,822 3 8	419,759 11 8	322,508 13 10	132,961 9 8	875,229 15 2
1865 - -	533,537 15 4	419,394 18 7	356,946 4 –	129,095 11 9	905,436 14 4
1866 - -	527,362 1 8	398,012 9 8	376,093 16 11	135,627 13 –	909,733 19 7
1867 - -	582,964 18 4	462,989 2 10	400,291 3 7	107,143 14 3	970,424 – 8
1868 - -	583,794 5 4	499,782 15 6	430,279 11 10	91,121 12 9	1,021,184 – 1
TOTAL - £.	6,070,135 – 11†	4,554,333 5 5†	3,241,326 12 10	1,195,745 9 9	8,991,405 8 –

SCOTLAND.

	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
1859 - -	99,015 9 1	41,333 1 5*	47,056 19 7	19,493 10 6	107,883 11 6
1860 - -	92,304 – 1	51,855 1 –*	54,193 13 7	21,930 13 2	127,979 7 9
1861 - -	97,183 4 3	46,895 12 11*	57,115 3 1	24,579 2 5	128,589 18 5
1862 - -	115,317 9 9	49,242 2 10	55,091 12 4	27,762 8 3	132,096 3 5
1863 - -	107,849 11 6	53,207 17 1	66,924 16 3	25,859 18 6	145,992 11 10
1864 - -	110,286 1 10	44,497 – 5	61,845 18 6	26,216 15 10	132,559 14 9
1865 - -	96,257 3 6	46,387 9 9	73,018 19 6	29,013 7 –	148,419 16 3
1866 - -	95,368 9 2	50,900 7 7	79,375 1 5	28,948 – 3	159,223 9 3
1867 - -	102,236 13 4	56,717 19 10	82,431 17 8	26,181 18 8	165,331 16 2
1868 - -	96,634 14 11	60,623 11 3	90,631 5 10	27,135 10 10	178,390 7 11
TOTAL - £.	1,012,452 17 5‡	501,660 4 1‡	667,685 7 9	257,121 5 5	1,426,466 17 3

* The contributions in these years towards the annual expenses of normal schools from other than public sources have had to be estimated (but only to a small extent); the rest of the figures throughout the Tables are taken from actual returns.

† Of these totals, 1,228,182 *l.* 18 *s.* 4 *d.* from the monies voted by Parliament, and 1,421,919 *l.* from the monies subscribed, were expended upon other objects included in the estimate for Public Education, besides the annual maintenance of elementary and normal schools, viz., for building and administration.

‡ Of these totals, 148,341 *l.* 1 *s.* 1 *d.* from the monies voted by Parliament, and 86,280 *l.* 4 *s.* 8 *d.* from the monies subscribed, were expended upon other objects included in the estimate for Public Education, besides the annual maintenance of elementary and normal schools, viz., for building and administration.

Education Department,
Privy Council Office, Downing-street,
1st March 1869.

R. R. W. Lingen.

PUBLIC EDUCATION.

ACCOUNT of the Sums Expended out of the Monies Voted by Parliament for Public Education in *England* and *Wales*, between 31 March 1858 and 1 April 1868; of Sums derived from Subscriptions, School Pence, or other Sources, and spent in connection with the Monies Voted by Parliament; and, similar Account for *Scotland*.

(*Mr. Acland.*)

Ordered, by The House of Commons, *to be Printed*, 22 *March* 1869.

EDUCATION.

RETURN to an Address of the Honourable The House of Commons, dated 13 May 1869;—*for*,

"RETURNS of Number of CANDIDATES, Male and Female, who presented themselves for EXAMINATION at the TRAINING COLLEGES at Christmas 1868:"

"Of the Number of those who passed their EXAMINATION in the Year:"

"Of the Number of those who entered TRAINING COLLEGES in January 1869:"

"Of the Number of PUPIL TEACHERS Apprenticed in the Year 1868:"

"And, of the Number of PUPIL TEACHERS in each of the Years of Apprenticeship in 1868 (in continuation of Parliamentary Paper, No. 150, of Session 1867–8)."

	Christmas 1867.		Christmas 1868.	
	Males.	Females.	Males.	Females.
Number of Candidates (*i. e.* for admission) who presented themselves for examination at the Training Colleges at Christmas, 1867 and 1868	599	879	615	910
Number of those who passed their examination in that year	454	706	457	788

	January 1868.		January 1869.	
	Males.	Females.	Males.	Females.
Number of those who entered Training Colleges in January 1868 and 1869	445	676	440	744

	1867.		1868.	
	Males.	Females.	Males.	Females.
Number of Pupil Teachers apprenticed (*i. e.* admitted to apprenticeship in 1867 and 1868)	1,838	1,904	2,171	2,246
Number of Pupil Teachers in 1st year (on 31 Dec. 1867 and 1868)	1,711*	1,735*	1,949*	1,933*
" " 2nd " "	1,291	1,462	1,682	1,823
" " 3rd " "	1,013	1,236	1,187	1,453
" " 4th " "	709	922	910	1,205
" " 5th " "	650	957	637	889
	5,374	6,312	6,365	7,303

* These numbers are less than those immediately above them; but Pupil Teachers, who are old and proficient enough, are often "admitted" in one of the later years of service. *See* Code of 1860, Article 103, and Revised Code, Article 81 f, marginal note 8.

Education Department,
Privy Council Office, Downing-street,
25 May 1869.

R. R. W. LINGEN.

EDUCATION.

RETURN of the Number of CANDIDATES, Male and Female, who presented themselves for Examination at the TRAINING COLLEGES at Christmas 1868; of the Number of those who passed their Examination in the Year; of the Number out of those who entered TRAINING COLLEGES in January 1869; &c.

(*Mr. Adderley.*)

Ordered, by The House of Commons, *to be Printed,*
15 *June* 1869.

EDUCATION (IRELAND).

RETURN to an Order of the Honourable The House of Commons, dated 5 April 1869;—*for*,

RETURN "of the SCHOOLS under the NATIONAL BOARD of *Ireland* which are in connection with MONASTIC and CONVENTUAL INSTITUTIONS; stating the Amount which each receives from the Education Grant, and the Locality in which they are situated."

RETURN of the SCHOOLS under the NATIONAL BOARD of *Ireland* which are in connection with MONASTIC and CONVENTUAL INSTITUTIONS; stating the Amount which each receives from the Education Grant, and the Locality in which they are situated.

COUNTY.	No. of Schools.	Roll No. of School.	Name of School.	Capitation Allowance (according to Average Number of Pupils in Daily Attendance).	Personal Salaries to Paid Monitors and Industrial Teachers.	Premiums and Gratuities.	Free Stock, Requisites, &c.	GRAND TOTAL.	Amount Paid for Requisites at Reduced Prices.
				£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Antrim - -	1	7,059	Crumlin Road, Female (Belfast) -	86 8 9	94 6 1	21 – –	– –	201 14 10	14 9 11
Ditto - -	2	8,056	Hamilton Street, Female (Belfast) -	78 – –	100 5 –	27 10 –	– –	205 15 –	13 8 –
Armagh - -	3	7,508	Carral Street, Female (Newry) -	36 – 10	64 13 4	10 5 –	– –	110 19 2	9 2 2
Ditto - -	4	8,220	Mount St. Catherine, Female (Armagh).	33 15 –	33 11 8	11 – –	– –	78 6 8	1 16 5
Ditto - -	5	9,719	Edward Street, Female (Lurgan) -	47 10 –	50 18 4	6 – –	– –	104 8 4	8 5 7
Cavan - -	6	8,490	Cavan, Female - - - -	35 – –	42 12 2	12 – –	– –	89 12 2	15 9 1
Donegal - -	7	7,593	Ballyshannon, Female - - -	25 – –	27 – –	1 – –	– –	53 – –	7 10 –
Ditto - -	8	9,278	Moville, Female - - - -	15 – –	15 – –	4 – –	– –	34 – –	4 16 3
Down - -	9	243	High Street, Female (Newry) -	69 11 3	42 6 8	15 10 –	10 – –	137 7 11	23 16 9
Ditto - -	10	7,272	John Street, Female (Downpatrick)	26 5 –	43 15 –	14 5 –	– –	84 5 –	8 2 2
Ditto - -	11	9,725	Rostrevor, Female - - -	20 – –	6 3 4	1 – –	– –	27 3 4	3 12 11
Fermanagh -	12	7,497	Enniskillen, Female, No. 2 - -	43 15 –	35 – –	4 10 –	– –	83 5 –	9 9 8
Londonderry -	13	6,168	St. Columbs, Female, No. 2 (Derry)	47 10 –	50 18 4	7 10 –	– –	105 18 4	14 12 3
Monaghan - -	14	359	Monaghan, Female - - -	35 – –	40 16 8	12 – –	– –	87 16 8	13 10 –
Tyrone - -	15	6,328	Omagh, Female - - - -	28 15 –	38 5 –	5 – –	6 18 –	78 18 –	11 – 11
Clare - - -	16	7,299	Kilrush, Female - - - -	43 15 –	56 18 10	12 – –	– –	112 13 10	1 9 8
Ditto - -	17	7,315	Ennis, Female - - - -	77 – –	103 15 –	36 10 –	4 5 5	221 10 5	25 5 –
Cork - - -	18	512	Midleton, Female - - -	89 15 –	100 13 4	9 – –	– –	199 8 4	16 19 7
Ditto - -	19	1,541	Charleville, Female - - -	36 5 –	23 17 6	6 – –	– –	66 2 6	7 1 9
Ditto - -	20	2,258	Fermoy, Female - - -	62 2 6	52 1 8	15 1 8	– –	129 5 10	15 18 7
Ditto - -	21	2,278	Millstreet, Female - - -	46 5 –	44 15 –	11 10 –	– –	102 10 –	11 16 11
Ditto - -	22	3,828	Youghal, Female - - -	69 11 3	61 16 8	3 – –	– –	134 7 11	17 17 1
Ditto - -	23	4,268	Doneraile, Female - - -	46 5 –	50 1 1	– 13 10	– –	96 19 11	29 3 –
Ditto - -	24	4,572	Kinsale, Female - - - -	59 6 3	112 6 4	15 – –	– –	186 12 7	20 4 4
Ditto - -	25	4,630	Mallow, Female - - - -	35 – –	39 18 4	8 – –	– –	82 18 4	24 15 8
Ditto - -	26	5,257	Bandon, Female - - - -	75 18 9	85 6 –	3 – –	5 –	169 6 9	21 6 5
Ditto - -	27	5,940	Blackrock, Female - - -	21 5 –	32 3 4	3 – –	– –	56 8 4	3 6 8
Ditto - -	28	6,153	St. Finbar's, Female (Cork) -	124 2 6	94 8 4	3 – –	– –	221 10 10	30 11 2
Ditto - -	29	6,376	Queenstown, Female - - -	92 18 9	108 13 7	6 – –	– –	207 12 4	27 15 8
Ditto - -	30	6,528	St. Joseph's, Female (Cork) -	72 15 –	85 5 –	4 10 –	– –	162 10 –	22 14 1
Ditto - -	31	7,651	Clonakilty, Female - - -	82 6 3	98 8 4	16 – –	4 5 5	201 – –	20 – 3
Ditto - -	32	8,414	Passage West, Female - - -	35 – –	43 16 8	– – –	– –	78 16 8	7 – 1
Ditto - -	33	8,430	Skibereen, Female, No. 2 - -	75 18 9	118 1 8	30 10 –	– –	224 10 5	26 5 9
Ditto - -	34	9,161	Bantry, Female - - - -	41 5 –	47 11 8	13 – –	– –	101 16 8	13 6 7
Ditto - -	35	9,523	Castletown, Female - - -	32 10 –	47 8 4	9 – –	– –	88 18 4	8 18 2
Ditto - -	36	10,047	Macroom, Female - - -	46 9 7	14 15 10	– – –	– –	61 5 5	—
Ditto - -	37	5,669	Great George's Street, Lancasterian, Male (Cork).	69 11 3	54 15 –	1 – –	– –	125 6 3	15 11 4
Ditto - -	38	5,099	Douglas Street, Male (Cork) -	82 6 3	54 8 4	4 10 –	– –	141 4 7	19 15 –

COUNTY.	No. of Schools.	Roll No. of School.	Name of School.	Capitation Allowance (according to Average Number of Pupils in Daily Attendance).	Personal Salaries to Paid Monitors and Industrial Teachers.	Premiums and Gratuities.	Free Stock, Requisites, &c.	GRAND TOTAL.	Amount Paid for Requisites at Reduced Prices.
				£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Kerry	39	533	Killarney, Female, No. 1	59 16 3	77 18 4	22 – –	– –	159 14 7	15 13 3
Ditto	40	6,654	Killarney, Female, No. 2	30 – –	38 16 8	6 – –	1 1 –	75 17 8	4 15 2
Ditto	41	538	Dingle, Female	50 – –	63 – 4	16 – –	– –	129 – 4	12 17 7
Ditto	42	545	Tralee, Female, No. 1	81 5 –	65 3 4	1 – –	– –	147 8 4	10 5 –
Ditto	43	9,266	Tralee, Female, No. 2	32 10 –	33 10 –	16 – –	– –	82 – –	9 5 1
Ditto	44	1,859	Milltown, Female	37 19 –	34 6 8	6 – –	– –	78 5 8	9 – 7
Ditto	45	2,884	Caherciveen, Female	41 12 6	64 13 4	13 – –	– –	119 5 10	8 16 –
Ditto	46	4,062	Listowel, Female	77 – –	68 15 –	15 – –	– –	160 15 –	13 16 11
Ditto	47	6,215	Castleisland, Female	59 8 9	98 3 4	36 – –	– –	193 12 1	27 7 2
Ditto	48	8,320	Kenmare, Female	73 16 3	126 1 8	53 10 –	– –	253 7 11	15 3 2
Ditto	49	1,793	Killarney, Male	53 15 –	40 – –	– –	– –	93 15 –	11 3 9
Ditto	50	3,655	Milltown, Male	27 10 –	18 10 –	– –	– –	46 – –	9 11 11
Limerick	51	570	SS. Mary and Munchin's, Female (Limerick).	101 8 9	129 17 2	39 10 –	3 5 5	274 1 4	25 5 11
Ditto	52	5,143	Perry Square, Female (Limerick)	66 7 6	78 1 8	19 2 6	– –	163 11 8	19 5 7
Ditto	53	5,547	Sexton Street, Female (Limerick)	98 5 –	119 3 4	37 11 8	– –	255 – –	21 12 6
Ditto	54	5,554	St. Mary's, Female (Limerick)	10 – –	– –	– –	– –	10 – –	—
Ditto	55	6,032	St. Catherine's, Female (Newcastle West).	59 12 6	98 13 4	6 – –	– –	164 5 10	15 5 8
Ditto	56	6,569	St. Anne's, Female (Limerick)	51 5 –	56 2 9	11 – –	– –	118 7 9	8 12 5
Ditto	57	6,936	St. John's Square, Female (Limerick).	74 17 6	76 1 8	17 15 –	– –	168 14 2	12 18 6
Ditto	58	9,296	Adare, Female	31 5 –	41 3 4	12 10 –	– –	84 18 4	4 19 1
Ditto	59	10,106	Doon, Female	2 10 –	– –	– –	7 – –	9 10 –	13 – 6
Tipperary	60	581	Cashel, Female	77 – –	104 5 –	14 – –	4 17 6	200 2 6	23 7 5
Ditto	61	2,133	Air Hill, Female (Roscrea)	57 10 –	63 18 4	9 10 –	– –	130 18 4	43 – 11
Ditto	62	4,068	Thurles, Female	61 1 3	56 6 8	32 10 –	– –	149 17 11	17 7 8
Ditto	63	7,392	Nenagh, Female	45 – –	39 10 –	3 – –	– –	87 10 –	11 1 2
Ditto	64	8,903	Fethard, Female	60 13 9	29 5 –	10 10 –	1 – –	101 8 9	15 – 6
Ditto	65	9,407	Templemore, Female	36 5 –	44 – 6	12 10 –	– –	92 15 6	9 10 3
Ditto	66	9,432	Tipperary, Female	66 7 6	87 15 –	8 – –	– –	162 2 6	20 7 3
Ditto	67	10,120	Cahir, Female	– – –	– – –	– – –	8 – –	8 – –	24 8 7
Waterford	68	1,289	Tallow, Female	47 10 –	33 3 4	3 – –	– –	83 13 4	1 13 4
Ditto	69	3,228	Cappoquin, Female	43 15 –	51 – –	18 – –	– –	112 15 –	22 11 3
Carlow	70	682	Tullow, Female	27 10 –	40 1 8	4 – –	– –	71 11 8	9 13 5
Ditto	71	656	Carlow, Female, No. 1	61 18 9	94 3 4	14 – –	– –	170 2 1	14 4 2
Ditto	72	10,010	Carlow, Female, No. 2	10 – –	– – –	– – –	7 – –	17 – –	2 19 –
Ditto	73	1,926	Bagnalstown, Female	31 5 –	43 10 8	13 10 –	– –	88 5 8	10 – 5
Ditto	74	681	Tullow, Male	28 15 –	19 6 8	1 10 –	– –	49 11 8	2 8 3
Dublin	75	715	Lucan, Female	21 5 –	16 10 –	1 10 –	– –	39 5 –	5 17 7
Ditto	76	721	Blackrock, Female	54 16 3	78 – –	11 – –	– –	143 16 3	7 12 11
Ditto	77	729	Loretto, Female, (Rathfarnham)	30 – –	39 10 –	1 10 –	– –	71 – –	3 9 8
Ditto	78	1,149	King's Inn Street, Female (Dublin)	138 3 9	295 3 4	81 10 –	– –	514 17 1	38 16 3
Ditto	79	1,985	Booterstown, Female	26 5 –	29 10 10	8 – –	– –	63 15 10	2 2 –
Ditto	80	2,018	Baggot Street, Female (Dublin)	134 8 9	275 17 8	16 – –	– –	426 6 5	47 14 5
Ditto	81	5,600	Kingstown, Female	102 10 –	102 10 –	14 15 –	– –	219 15 –	38 9 6
Ditto	82	5,933	George's Hill, Female (Dublin)	99 6 3	159 9 2	22 17 6	– –	281 12 11	35 19 –
Ditto	83	6,372	Fir House, Female	17 10 –	10 15 –	1 – –	– –	29 5 –	2 1 3
Ditto	84	6,742	Warrenmount, Female (Dublin)	53 15 –	78 – –	19 – –	– –	150 15 –	13 4 7
Ditto	85	7,029	Tranquilla, Female (Rathmines)	16 5 –	22 1 8	5 10 –	– –	43 16 8	3 9 11
Ditto	86	7,182	Dalkey, Female	26 5 –	32 10 –	3 – –	– –	61 15 –	2 9 8
Ditto	87	7,546	Golden Bridge, Female	53 15 –	112 10 –	20 – –	– –	186 5 –	12 10 6
Ditto	88	7,608	Glasthule, Female	40 – –	53 8 4	3 – –	– –	96 8 4	17 10 5
Ditto	89	7,883	Clondalkin, Female	28 15 –	41 6 8	15 – –	1 – –	86 1 8	9 17 3
Ditto	90	9,743	Roundtown, Female	38 15 –	25 14 –	6 – –	3 19 9	74 8 9	22 10 8
Kildare	91	771	Kildare, Female	20 – –	13 6 8	1 – –	– –	34 6 8	4 4 4
Ditto	92	779	Maynooth, Female	22 10 –	11 1 8	4 – –	– –	37 11 8	3 18 7
Ditto	93	1,151	Clare, Female	21 5 –	23 4 5	11 – –	– –	55 9 5	4 11 4
Ditto	94	3,246	Naas, Female	42 10 –	47 11 8	9 – –	4 19 –	104 – 8	10 2 4
Ditto	95	4,997	Athy, Female	55 17 6	86 11 8	35 – –	– –	177 9 2	19 2 4
Kilkenny	96	806	Kilkenny, Female	66 7 6	98 15 –	37 – –	– –	202 2 6	33 18 5
Ditto	97	5,437	Mooncorn, Female	28 15 –	55 – –	6 10 –	– –	90 5 –	7 5 7
Ditto	98	9,134	Gousbridge, Female	20 – –	37 3 4	5 – –	– –	62 3 4	– 14 2
King's County	99	823	Killina, Female	17 10 –	14 3 4	13 10 –	– –	45 3 4	8 16 2
Ditto	100	2,080	Tullamore, Female	52 6 3	48 3 4	16 10 –	3 – –	119 19 7	15 1 –
Ditto	101	3,220	Birr, Female	60 13 9	37 – –	20 – –	– –	117 13 9	25 17 8
Ditto	102	7,471	Portarlington, Female	30 – –	44 1 8	18 10 –	– –	92 11 8	7 6 5
Ditto	103	8,982	Clara, Female	25 – –	28 5 –	12 – –	– –	65 5 –	2 2 8
Ditto	104	9,227	Banagher, Female	15 – –	20 – –	12 10 –	– –	47 10 –	12 1 1
Longford	105	857	Longford, Female	36 5 –	81 3 4	8 – –	– –	125 8 4	17 9 4
Louth	106	851	Drogheda, Female	84 8 9	79 11 8	19 10 –	– –	183 10 5	8 19 1
Ditto	107	5,387	Dundalk, Female, No. 2	72 15 –	44 1 1	10 10 –	– –	127 6 1	19 – 10
Ditto	108	8,052	St. Mary's, Female (Drogheda)	42 10 –	55 – –	10 15 –	3 2 2	111 7 2	12 10 10
Ditto	109	8,445	Ardu, Female, No. 2	31 5 –	16 8 4	1 10 –	– –	49 3 4	18 8 –
Meath	110	883	Navan, Female, No. 1	42 10 –	22 13 4	8 10 –	– –	73 13 4	28 9 1
Ditto	111	7,472	Navan, Female, No. 2	46 5 –	26 1 8	7 10 –	– –	79 16 8	30 15 10
Queen's County	112	902	Coote Street, Female (Mountrath)	23 15 –	24 16 8	3 – –	– –	51 11 8	9 3 –
Ditto	113	1,956	Maryboro', Female	43 15 –	52 16 1	23 – –	– –	119 11 1	25 19 11
Ditto	114	3,526	Abbeyleix, Female	27 10 –	18 3 4	11 – –	– –	56 13 4	8 7 6
Ditto	115	6,497	Stradbally, Female	38 15 –	58 15 –	16 – –	– –	113 10 –	7 12 10
Ditto	116	7,183	Mountmellick, Female	32 10 –	43 8 4	23 10 –	– –	99 8 4	9 14 5

COUNTY.	No. of Schools.	Roll No. of School.	Name of School.	Capitation Allowance (according to Average Number of Pupils in Daily Attendance).	Personal Salaries to Paid Monitors and Industrial Teachers.	Premiums and Gratuities.	Free Stock, Requisites, &c.	GRAND TOTAL.	Amount Paid for Requisites at Reduced Prices.
				£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Westmeath -	117	934	Mullingar, Female - - -	64 3 9	52 6 8	8 – –	- -	124 10 5	21 19 10
Ditto - -	118	6,674	Rochford Bridge, Female - -	21 5 –	13 10 –	5 – –	- -	39 15 –	3 6 1
Ditto - -	119	8,682	Moate, Female, No. 2 - - -	27 10 –	18 11 4	19 – –	- -	65 1 4	13 6 4
Wexford - -	120	967	New Ross, Female, No. 1 - -	42 10 –	40 10 –	1 – –	- -	84 – –	10 16 7
Ditto - -	121	9,047	New Ross, Female, No. 2 - -	28 15 –	17 5 –	- -	- -	46 – –	9 2 5
Ditto - -	122	969	Wexford, Female - - - -	65 2 6	60 11 8	10 – –	- -	135 14 2	15 6 2
Ditto - -	123	4,949	Wexford, Infant - - - -	40 – –	41 7 6	1 10 –	- -	82 17 6	14 9 4
Ditto - -	124	3,634	Newtownbarry, Female - -	15 – –	17 6 8	4 10 –	- -	36 16 8	4 16 3
Ditto - -	125	3,824	Gorey, Female - - - -	31 5 –	18 5 –	6 5 –	- -	55 15 –	9 14 4
Ditto - -	126	6,058	Enniscorthy, Female - - -	36 – –	39 11 8	6 – –	1 – –	82 11 8	7 8 11
Ditto - -	127	8,221	Templeshannon, Female (Enniscorthy).	25 – –	25 8 4	3 – –	- -	53 8 4	3 4 9
Wicklow - -	128	7,180	Bray, Female, No. 2 - - -	53 15 –	37 5 10	4 – –	- -	95 – 10	19 13 5
Galway - -	129	1,011	Loughrea, Female.*	—	—	—	—	—	—
Ditto - -	130	1,013	Rahoon, Female (Galway) - -	75 18 9	100 6 8	12 – –	- -	188 5 5	22 3 7
Ditto - -	131	4,515	Newtown Smith, Female (Galway)	73 16 3	116 – –	15 – –	- -	204 16 3	20 – 10
Ditto - -	132	6,613	St. Nicholas', Female (Galway) -	27 10 –	54 15 –	4 10 –	- -	86 15 –	4 17 10
Ditto - -	133	6,632	St. Vincent's, Female (Loughrea) -	58 11 3	83 18 4	15 – –	- -	157 9 7	12 12 4
Ditto - -	134	6,839	Ballinasloe, Female - - -	67 8 9	106 10 –	15 – –	- -	188 18 9	14 2 5
Ditto - -	135	8,195	Gort, Female, No. 2 - - -	50 – –	45 10 –	12 – –	- -	107 10 –	12 6 4
Ditto - -	136	8,322	Oughterard, Female - - -	40 – –	53 15 –	13 – –	- -	106 15 –	13 9 9
Ditto - -	137	8,795	Oranmore, Female - - -	42 10 –	55 18 4	3 – –	- -	101 8 4	14 4 5
Ditto - -	138	1,016	Galway, Male - - - -	78 1 3	67 10 –	12 – –	- -	157 11 3	28 12 5
Leitrim - -	139	9,735	Drumshambo, Female - - -	23 15 –	6 – –	- -	- -	29 15 –	1 14 8
Mayo - -	140	5,215	Ballina, Female - - - -	33 15 –	32 6 8	2 – –	- -	68 1 8	7 11 3
Ditto - -	141	7,713	Swineford, Female - - -	45 – –	54 15 –	18 – –	- -	117 15 –	16 4 9
Roscommon -	142	7,238	Roscommon, Female - - -	38 15 –	61 6 8	8 – –	- -	108 1 8	18 7 5
Ditto - -	143	7,722	St. Peter's, Female (Athlone) -	33 15 –	47 10 –	11 – –	- -	92 5 –	14 14 10
Ditto - -	144	10,088	Abbey-Castron, Female (Elphin) -	13 15 –	- -	- -	9 – –	22 15 –	10 2 10
Sligo - - -	145	5,851	Sligo, Female - - - -	55 – –	48 2 6	28 10 –	- -	131 12 6	14 6 8
			GRAND TOTAL - - - £.	6,909 9 5	8,027 12 7	1,645 17 2	88 15 8	16,671 14 10	2,016 19 3

*This School (Loughrea, Female) has been inoperative for some time.

Note I.—The Capitation Allowance is based on the following scale :—

DAY SCHOOLS.						EVENING SCHOOLS.
Average Attendance.	——	Salary.	Average Attendance.	——	Salary.	
		£. s. d.			£. s. d.	
30 to 50		10 – –	301 to 325		64 5 –	10 *l.* per annum is paid for every hundred pupils in average attendance.
51 „ 75		15 – –	326 „ 350		68 10 –	
76 „ 100		20 – –	351 „ 375		72 15 –	
101 „ 125	Increase at	25 – –	376 „ 400	Increase at	77 – –	
126 „ 150		30 – –	401 „ 425		81 5 –	
151 „ 175	20 *l.*	35 – –	426 „ 450	17 *l.*	85 10 –	
176 „ 200		40 – –	451 „ 475		89 15 –	
201 „ 225	per Cent.	45 – –	476 „ 500	per Cent.	94 – –	
226 „ 250		50 – –	501 „ 525		98 5 –	
251 „ 275		55 – –	526 „ 550		102 10 –	
276 „ 300		60 – –	551 „ 575		106 15 –	
			576 „ 600		111 – –	

601 upwards, increase at 15 *l.* per cent.

The amount of salary is increased or diminished each quarter, according to the increase or diminution in the quarterly average.
In convent schools, as well as in other female schools, when embroidery or other advanced kinds of needlework are taught, a special Industrial Salary is granted to Lay Teachers.

Note II.—The total number of pupils on the rolls of Convent and Monastic Schools for the Year 1868 was 78,225, and the average attendance, 34,692.

Note III.—In the last column, headed "Amount of Requisites Purchased at Reduced Prices," is inserted the amount of money paid for requisites by the managers of these schools, and purchased at the same cost by the pupils. This amount does not represent the value of the requisites, as a deduction of 33 per cent. is allowed; so that the true value is as nearly as possible one-half more than that set down.

This reduction being entirely for the benefit of the pupils, as in the case of all National Schools, the amount is not included in the Grand Total.

16 April 1869.

James Tully.
Wm. Homan Newell.

EDUCATION (IRELAND).

RETURN of the Schools under the National Board of *Ireland* which are in connection with Monastic and Conventual Institutions; stating the Amount which each receives from the Education Grant, and the Locality in which they are situated.

(*Mr. Keown.*)

Ordered, by The House of Commons, *to be Printed,*
7 *May* 1869.

194.

Under 1 *oz.*

EDUCATION (SCOTLAND).

MINUTE of the Right Honourable the Lords of the Committee of the Privy Council on Education, dated the 13th day of July 1869.

At the Council Chamber, Whitehall, the 13th day of July 1869.

Minute by the Lords of the Committee of Her Majesty's Most Honourable Privy Council on Education.

Read,—The Minute of the 21st day of May 1868, whereby the inspection and examination of elementary schools in Scotland, as prescribed by the Minute of 11th June 1864, was left without change, but the period within which annual grants might be paid to such schools, according to the Code of 1860, was extended to 30th June (inclusive) 1870 ;—

Resolved, That the said period be further extended, viz., to 30th June (inclusive) 1871, to allow for the engagement, according to the Regulations now in force, of teachers and pupil teachers whose first year of service will end later than 30th June 1870, and who cannot be engaged without knowing on what terms the contract between themselves and their employers for the service of such year is to be made.

EDUCATION (SCOTLAND).

MINUTE of the Right Honourable the Lords of the Committee of the Privy Council on Education, dated the 13th day of July 1869.

(Presented to Parliament by Her Majesty's Command.)

Ordered, by The House of Commons, *to be Printed,*
14 *July* 1869.

PAROCHIAL SCHOOLS (SCOTLAND).

RETURN to an Address of the Honourable The House of Commons, dated 3 June 1869;—*for*,

"RETURN of the Number of HERITORS qualified to attend and vote at any Meeting held pursuant to the Act 43 Geo. 3, c. 54, defined in the 22nd Section of the said Act, in all PARISHES in *Scotland*, in which a PAROCHIAL SCHOOL is established."

Note.—This Return has been made up from Returns furnished by the Parochial Schoolmasters. In case where the Schoolmaster was not the Clerk of the Heritors, and expressed any doubt, the Clerk was applied to for a Return.

The Returns from a few of the Parishes have not been obtained, but so soon however as they are all received, they will be made the subject of a Supplementary Return.

As Shetland seems to be peculiarly situated, *copies* of all the Returns from there are herewith sent.

Crown Office, Edinburgh, 29 July 1869.

CHARLES MORTON,
Crown Agent.

(*Sir Edward Colebrooke.*)

Ordered, by The House of Commons, *to be Printed*,
9 *August* 1869.

RETURN of the Number of HERITORS qualified to attend and vote at any Meeting held pursuant to the Act 43 Geo. 3, c. 54, defined in the 22nd Section of the said Act, in all PARISHES in *Scotland* in which a PAROCHIAL SCHOOL is established.

COUNTY.	PARISH.	Number of Heritors.	REMARKS.
ABERDEEN	Aberdeen	–	
	Aberdour	2	
	Aboyne	3	
	Alford	4	
	Auchindoir	4	
	Auchterless	6	
	Belhelvie	12	
	Birse	4	
	Bourtie	4	
	Cairnie	2	
	Chapel of Garioch	8	
	Clatt	2	
	Cluny	3	
	Coull	3	
	Crathie and Braemar	4	
	Crimond	3	
	Cruden	9	
	Culsamond	4	
	Daviot	4	
	Deer, New	9	
	Deer, Old	10	
	Drumblade	4	
	Drumoak	3	
	Dyce	5	
	Echt	2	
	Ellon	6	
	Fintray	4	
	Forgue	6	
	Foveran	8	
	Fraserburgh	3	
	Fyvie	6	
	Gartly	1	
	Glass	3	This includes Parish Minister.
	Glenbucket	1	
	Glenmuick	3	
	Huntly	2	
	Insch	6	
	Inverurie	6	
	Keig	3	
	Keithall and Kinkell	2	
	Kemnay	2	
	Kildrummy	3	
	Kincardine O'Neil	11	
	King Edward	5	
	Kinnellar	4	
	Kinnethmont	4	
	Kintore	2	
	Leochel-Cushnie	–	
	Leochel	2	
	Cushnie	3	
	Leslie	2	
	Logie-Buchan	8	
	Logie-Coldstone	7	
	Longside	8	
	Lonmay	6	
	Lumphanan	5	
	Machar, New	6	
	Machar, Old	28	
	Meldrum, Old	3	
	Methlic	1	
	Midmar	2	
	Monquhitter	7	
	Monymusk	1	
	Newhills	3	
	Oyne	6	
	Peter Culter	5	
	Peterhead	12	
	Pitsligo	4	
	Premnay	4	
	Rathen	8	
	Rayne	5	
	Rhynie	1	
	Skene	8	
	Slains	2	
	Strathdon	4	
	Strichen	1	
	Tarland and Migvie	7	
	Tarves	1	
	Tough	2	
ABERDEEN—*continued.*	Towie	5	
	Tullynessle and Forbes	4	
	Turriff	10	
	Tyrie	3	
	Udny	9	
ARGYLE	Ardchattan and Muckairn.	9	
	Ardnamurchan	14	
	Campbeltown	–	
	Coll	2	
	Colonsy and Oronsay	1	
	Craignish	3	
	Dunoon and Kilmun	10	
	Gigha	2	
	Glassary	12	
	Glenorchy and Inishail:		
	Glenorchy District	1	
	Inishail "	7	
	Inverary	1	
	Inverchaolain	7	
	Jura	5	
	Kilbrandon	4	
	Kilcalmonell and Kilberry.	9	
	Kilchoman	–	
	Kilchrennan and Dalavich.	7	
	Kildalton	–	
	Kilfinan	9	
	Kilfinichen	7	
	Killarrow	3	
	Killean and Kilchenzie	12	
	Kilmartin	4	
	Kilmodan	6	
	Kilmore and Kilbride	10	
	Kilminian and Kilmore.	–	
	Kilninver and Kilmelfort.	5	
	Knapdale, North	2	
	Knapdale, South	6	
	Lesinore and Appin	18	
	Lochgoilhead and Kilmorach.	4	
	Morven	9	
	Saddell and Skipness	6	
	Southend	5	
	Strachur	6	
	Stralachlan	1	
	Torosay	5	
	Tyree	1	
AYR	Ardrossan	5	
	Auchinleck	6	
	Ayr	–	No School in Ayr under provisions of Act.
	Ballantrae	13	
	Barr	9	
	Beith	13	
	Colmonell	16	
	Coylton	6	
	Craigie	7	
	Cumnock, New	10	
	Cumnock, Old	4	
	Dailly	6	
	Dalmellington	2	
	Dalry	12	
	Dalrymple	4	
	Dreghorn	12	
	Dundonnald	8	
	Dunlop	8	
	Fenwick	4	
	Galston	4	
	Girvan	8	
	Irvine	–	No Parochial School established.
	Kilbianie	2	

County.	Parish.	Number of Heritors.	Remarks.
Ayr—*continued.*	Kilbride, West	6	
	Kilmarnock	5	
	Kilmaurs	8	
	Kilwinning	10	
	Kirkmichael	7	
	Kirkoswald	3	
	Largs	6	
	Loudoun	5	
	Mauchline	6	
	Maybole	12	
	Monkton	10	
	Muirkirk	3	
	Newton-on-Ayr	–	There is a School in Parish, but no Heritors qualified under Act, Schoolmaster being paid from Burgh Funds.
	Ochiltree	10	
	Riccarton	8	
	St. Quivox	4	
	Sorn	11	
	Stair	4	
	Stevenston	3	
	Stewarton	17	
	Straiton	7	
	Symington	5	
	Tarbolton	13	
Banff	Aberlour	3	
	Alvah	5	
	Banff	3	
	Boharm	4	
	Botriphnie	2	
	Boyndie	1	
	Cabrach	3	
	Cullen	1	
	Deskford	1	
	Fordyce	3	
	Forglen	3	
	Gamrie:		
	Gamrie, or East District	4	
	McDuff District		
	Grange	3	
	Inveravon	3	
	Inverkeithny	6	
	Keith	4	
	Kirkmichael	2	
	Marnoch	8	
	Mortlach	3	
	Ordiquhill	1	
	Rathven	6	
	Rothiemay	3	
	St. Fergus	2	
Berwick	Abbey St. Bathans	4	
	Ayton	9	
	Bunkle and Preston	4	
	Channelkirk	7	
	Churnside	5	
	Cockburnspath	7	
	Coldingham	25	
	Coldstream	8	
	Cranshaws	3	
	Dunse	9	
	Earlstown	7	
	Eccles	17	
	Edrom	7	
	Eyemouth	3	
	Fogo	3	
	Foulden	3	
	Gordon	5	
	Greenlaw	4	
	Hume	3	
	Hutton	7	
	Ladykirk	3	
	Langton	1	
	Lauder	7	
	Legerwood	5	
	Longformacus	9	
	Mertown	5	
	Mordington	3	
	Nenthorn	4	
	Polwarth	1	
	Swinton	5	
	Westruther	6	
	Whitsome	8	
Bute	Cumbraes	2	
	Kilbride	1	
	Kilmorie	1	
	Kingarth	2	
	North Bute	1	
	Rothesay	2	
Caithness	Bower	8	
	Canisbay	2	
	Dunnet	3	
	Halkirk	6	
	Latheron	8	
	Olrick	4	
	Reay	5	
	Thurso	5	
	Watten	6	
	Wick	11	
Clackmannan	Alloa and Tillibody	6	
	Clackmannan	6	
	Dollar	2	
	Logie	9	
	Tillicoultry	4	
Dumbarton	Arrochar	1	
	Bonhill	8	
	Cardross	11	
	Cumbernauld	11	
	Dumbarton	–	
	Kilmarnock	10	
	Kilpatrick, New	10	
	Kilpatrick, Old	5	
	Kirkintilloch	14	
	Luss	2	
	Roseneath	3	
	Row	1	
Dumfries	Annan	4	
	Applegarth	7	
	Caerlaverock	3	
	Canonbie	1	
	Closeburn	5	
	Cummertrees	–	
	Dalton	6	
	Dornock	5	
	Dryfesdale	11	
	Dumfries	6	
	Dunscore	13	
	Durrisdeer	1	
	Eskdalemuir	8	
	Ewes	4	
	Glencairn	17	
	Graitney	4	
	Half-Morton	1	
	Hoddam	7	
	Holywood	12	
	Hutton	4	
	Johnstone	2	
	Keir	5	
	Kirkconnell	1	
	Kirkmahoe	7	
	Kirkmichael	5	
	Kirkpatrick-Fleming	4	
	Kirkpatrick-Juxta	7	
	Langholm	–	
	Lochmahen	15	
	Middlebie	9	
	Moffat	11	
	Morton	1	
	Mousewald	5	
	Penpont	4	
	Ruthwell	2	
	St. Mungo	1	
	Sanquhar	2	
	Tinwald	7	
	Torthorwald	2	
	Tundergarth	5	
	Tynron	3	
	Wamphray	5	
	Westerkirk	3	
Edinburgh	Borthwick	8	
	Calder, Mid	11	
	Calder, West	9	
	Canongate	–	
	Carrington	2	
	Cockpen	4	
	Colinton	11	
	Corstorphine	5	
	Cramond	9	
	Cranston	4	
	Crichton	5	
	Currie	11	
	Dalkeith	4	
	Duddingstone	4	
	Edinburgh	–	No Parochial School.

County.	Parish.	Number of Heritors.	Remarks.
Edinburgh—*continued.*	Fala and Soutra	4	
	Glencross	6	
	Heriot	7	
	Inveresk	–	No Parochial School.
	Kirknewton	8	
	Lasswade	13	
	Leith, North	–	No Parochial School.
	Leith, South	–	No Parochial School.
	Libberton	14	
	Newbattle	3	
	Newton	3	
	Pennycuick	5	
	Ratho	13	
	St. Cuthbert's	–	
	Stow	15	
	Temple	4	
Elgin & Moray	Abernethy	2	
	Alves	7	
	Bellie	1	
	Birnie	2	
	Dallas	3	
	Drainie	2	
	Duffus	5	
	Duthill	2	
	Dyke and Moy	6	
	Edinkillie	5	
	Elgin	–	No Parish School.
	Forres	–	No Parish School.
	Kinloss	5	
	Knockando	3	
	New Spynie	–	
	Rafford	4	
	Rothes	4	
	St. Andrew's, Lhanbride.	5	
	Speymouth	2	
	Urquhart	2	
Fife	Abbotshall	5	
	Abdie	12	
	Aberdour	6	
	Anstruther Easter	–	No Parochial School.
	Anstruther Wester	5	
	Arngask	9	
	Auchterderran	12	
	Auchtermuchty	–	
	Auchtertool	2	
	Ballingry	9	
	Balmerino	3	
	Beath	8	
	Burntisland	–	No Parish School.
	Cameron	18	
	Carnbee	18	
	Carnock	5	
	Ceres	12	
	Collessie	7	
	Crail	12	
	Creich	6	
	Cults	2	
	Cupar	–	No Parochial School.
	Dairsie	6	
	Dalgety	4	
	Denino	4	
	Dunbog	3	
	Dunfermline	–	No Parochial School.
	Dysart	4	
	Elie	3	
	Falkland	9	
	Ferryport-on-Craig	–	
	Flisk	3	
	Forgan	6	
	Inverkeithing	8	
	Kemback	4	
	Kennoway	10	
	Kettle	12	
	Kilconquhar	13	
	Kilmany	10	
	Kilrenny	8	
	Kinghorn	–	No Parochial School.
	Kinglassie	9	
	Kingsbarns	7	
	Kirkcaldy	–	No Parish School.
	Largs	9	
	Leslie	4	
	Leuchars	17	
	Logie	6	
	Markinch	16	
	Morimail	–	
	Moonzie	3	
	Newburgh	2	
	Newburn	14	
Fife—*continued.*	Pittenween	4	
	St. Andrew's	–	No Parochial School.
	St. Leonard's	–	No Parochial School.
	St. Monance	2	
	Saline	11	
	Scoonie	6	
	Strathmiglo	15	
	Torryburn	8	
	Wemyss	1	
Forfar	Aberlemno	10	
	Airly	6	
	Arbirlot	2	
	Arbroath	–	Has a Parish School, but no Heritors qualified under Act.
	Auchterhouse	4	
	Barry	–	
	Brechin	1	
	Caraldstone	–	
	Carmylie	3	
	Cortachy	2	
	Craig	4	
	Dun	4	
	Dundee	–	
	Dunnichen	–	
	Edzell	3	
	Essie and Nevy	5	
	Farnell	1	
	Fearn	3	
	Forfar	11	
	Glammis	3	
	Glenisla	6	
	Guthrie	3	
	Inverarity	5	
	Inverkeillor	6	
	Kettins	5	
	Kingoldrum	6	
	Kinnell	4	
	Kinnettles	3	
	Kirkden	5	
	Kirriemuir	7	
	Lethnot	3	
	Liff and Benrie	14	
	Lintrathen	4	
	Lochlee	1	
	Logie Pert	5	
	Lunan	3	
	Lundi and Fowlis Easter:		
	Lundie District	2	
	Fowlis Easter District	1	
	Mains & Strathmartin	8	
	Marytoun	2	
	Menmuir	5	
	Monifieth	12	
	Monikie	5	
	Montrose	–	No Parochial School.
	Murroes	5	
	Newtyle	3	
	Oathlaw	2	
	Panbride	1	
	Rescobie	7	
	Ruthven	1	
	St. Vigean's	17	
	Strickathrow	8	
	Tannadice	14	
	Tealing	4	
Haddington	Aberlady	3	
	Athelstaneford	8	
	Bolton	8	
	Dirleton	5	
	Dunbar	11	
	Garvald	5	
	Gladsmuir	7	
	Haddington	11	
	Humbie	7	
	Innerwick	6	
	Morhain	2	
	North Berwick	6	
	Oldhamstocks	4	
	Ormiston	1	
	Pencaitland	6	
	Prestonkirk	7	
	Prestonpans	5	
	Salton	4	
	Spot	6	
	Stenton	3	
	Tranent	11	
	Whitekirk	3	
	Whittingham	7	
	Yester	2	

County.	Parish.	Number of Heritors.	Remarks.
Inverness	Alvie	5	
	Ardersier	1	
	Barra	1	
	Boleskine & Abertarff	7	
	Bracadale	1	
	Cromdale	1	
	Croy	–	
	Daviot	9	
	Dores	7	
	Duirnish	7	
	Glenelg	4	
	Harris	2	
	Inverness	–	
	Kilmallie	4	
	Kilmonivaig	7	
	Kilmorack	3	
	Kilmuir	–	
	Kiltarlity	4	
	Kingussie	4	
	Kirkhill	7	
	Laggan	4	
	Moy and Dalarossie	11	
	Petty	4	
	Portree	2	
	Sleat	1	
	Small Isles	4	
	Serizort	5	
	Strath	2	
	Uist, North	1	
	Uist, South	1	
	Urquhart	4	
Kincardine	Arbuthnot	–	
	Banchory-Devenick	7	
	Banchory-Ternan	8	
	Benholm	2	
	Bervie	2	
	Dunottar	4	
	Durris	1	
	Fettercairn	6	
	Fetteresso	11	
	Fordoun	–	
	Garvock	8	
	Glenbervie	6	
	Kinneff and Caterline	9	
	Laurencekirk	4	
	Maryculter	5	
	Marykirk	7	
	Nigg	5	
	St. Cyrus	9	
	Strachan	3	
Kinross	Cleish	4	
	Kinross	16	
	Orwell	26	
	Portmoak	10	
Kirkcudbright	Anwoth	6	
	Balmaclellan	–	
	Balmaghie	8	
	Borgue	10	
	Buittle	16	
	Carsphairn	10	
	Colvend	7	
	Crossmichael	12	
	Dalry	6	
	Girthon	1	
	Kells	6	
	Kelton	11	
	Kirkbean	2	
	Kirkcudbright	3	
	Kirkgunzeon	3	
	Kirkmabreck	8	
	Kirkpatrick-Durham	11	
	Kirkpatrick-Irongray	12	
	Lochrutton	4	
	Minnigaff	5	
	New Abbey	5	
	Parton	8	
	Rerrick	–	
	Terregles	2	
	Tongland	7	
	Troqueer	23	
	Twynholm	5	
	Urr	17	
Lanark	Avondale	10	
	Barony	–	
	Biggar	10	
	Blantyre	1	
	Bothwell	–	
	Cadder	15	
	Cambuslang	3	
Lanark—*contd.*	Cambusnethan	6	
	Carluke	13	
	Carmichael	3	
	Carmunnock	2	
	Carnwath	12	
	Carstairs	4	
	Covington	4	
	Crawford	8	
	Crawfordjohn	4	
	Culter	5	
	Dalserf	4	
	Dalziel	4	
	Dolphington	2	
	Douglas	3	
	Dunsyre	1	
	Glasgow	–	No Parochial School.
	Glassford	4	
	Gorbals	–	No Parochial School.
	Govan	20	
	Hamilton	11	
	Kilbride, East	13	
	Lanark	7	
	Lesmahagow	17	
	Libberton	6	
	Monkland, New	15	
	Monkland, Old	19	
	Pittenain	1	
	Rutherglen	–	No Parochial School.
	Shotts	16	
	Stonehouse	4	
	Symington	3	
	Walston	2	
	Wandell & Lamington	2	
	Wiston and Roberton	6	
Linlithgow	Abercorn	2	
	Bathgate	17	
	Borrowstounness	1	
	Carriden	–	
	Dalmeny	4	
	Ecclesmachen	3	
	Kirkliston	8	
	Linlithgow	–	No Parochial School.
	Livingstone	9	
	Queensferry	–	No Parochial School.
	Torphichen	21	
	Uphall	8	
	Whitburn	12	
Nairn	Ardclach	6	
	Auldearn	5	
	Cawdor	2	
	Nairn	6	
Orkney and Shetland.			
1. Orkney	Birsay and Harray: Birsay District / Harray „	1	
	Cross and Burness	3	
	Eday	1	
	Evie and Rendall: Evie District / Rendall „	7	
	Firth	3	This parish combined with Stennis, and having one school.
	Holm	4	
	Hoy and Graemsay: Hoy District / Graemsay „	1	
	Kirkwall	–	No Parochial School.
	Lady	2	
	Orphir	2	
	Ronaldshay, South	3	
	Rousay and Egilshay: Rousay District / Egilshay „	2	
	St. Andrew's and Deerness: St. Andrew's District / Deerness District	6	
	Sandwick	5	
	Shapinshay	1	
	Stennis	3	This Parish is combined with Firth.
	Stromness	3	
	Stronsay	4	
	Walls and Flotta: Walls District / Flotta „	3	
	Westray and Papa-Westray: Westray District / Papa-Westray District	6	

County.	Parish.	Number of Heritors.	Remarks.
2. Shetland -	Bressay:		
	Bressay District } Burra and Quarff } Districts - -	Parish School, but no Heritors qualified by Act to vote. In practice, however, two of Heritors, along with Minister, have voted at all meetings, it being assumed that all Heritors whose *bonâ fide* annual rental is 100 *l.* had, in the absence of the requirements of statute, a right to do so.	
	Delting - - -	10	
	Dunrossness:		
	Dunrossness District, Sandwich and Cuningsburgh District, and Fair Isle District - -	–	The note relative to Parish of Bressay is applicable to this Parish also.
	Fetlar and North Yell:		
	Fetlar District - } North Yell „ - }	–	Same note applicable hereto as above.
	Lerwick - - -	–	ditto.
	Nesting:		
	Nesting District - } Lunasting „ - } Whalsay „ - }	–	ditto.
	North Mavine - -	–	ditto.
	Sandsting - -	–	ditto.
	Tingwall - - -	–	ditto.
	Unst - - -	–	ditto.
	Walls and Sandness	–	ditto.
	Yell (Mid and South)	–	ditto.
Peebles - -	Broughton - -	1	
	Drumelzier - -	–	
	Eddlestone - -	8	
	Innerleithen - -	6	
	Kirkind - - -	3	
	Linton West - -	11	
	Lyne and Megget:		
	Lyne District - } Megget „ - }	1	
	Manor - - -	6	
	Newlands - -	10	
	Peebles - - -	–	No Parochial School.
	Skirling - - -	1	
	Stobo - - -	–	
	Traquair - - -	5	
	Tweedsmuir - -	–	
Perth - -	Aberdalgie - -	1	
	Aberfoyle - -	1	
	Abernethy - -	19	
	Abernyte - -	6	
	Alyth - - -	11	
	Auchterarder - -	10	
	Auchtergaven - -	6	
	Balquhidder - -	7	
	Bendochy - -	21	
	Blackford - -	5	
	Blair Athol - -	6	
	Blairgowrie - -	14	
	Callander - -	8	
	Caputh - - -	12	
	Cargill - - -	5	
	Clunie - - -	7	
	Collace - - -	1	
	Comrie - - -	7	
	Coupar Angus -	15	
	Crieff - - -	7	
	Culross - - -	22	This being a Landward and Burgh Parish, the School is established under section 13 of said Act, and seems to be guided by use and wont.
	Dowally - - -	1	
	Dron - - -	7	
	Dull - - -	11	
	Dunbarney - -	5	
	Dunblane - -	5	
	Dunkeld - - -	–	No Parish School.
	Dunkeld, Little -	8	
	Dunning - - -	5	
	Errol - - -	14	
Perth—*contd.*	Forgandenny - -	4	
	Forteviot - -	4	
	Fortingall - -	10	
	Fossaway - -	8	
	Fowlis-Wester - -	9	
	Gask - - -	2	
	Glendevon - -	5	
	Inchture - - -	3	
	Kenmore - -	2	
	Killin - - -	5	
	Kilmadock - -	18	
	Kilspindie - -	6	
	Kincardine - -	–	
	Kinclaven - -	5	
	Kinfauns - -	5	
	Kinloch - - -	4	
	Kinnaird - -	2	
	Kinnoul - - -	9	
	Kirkmichael - -	12	
	Lethendy - -	3	
	Logerait - - -	19	
	Longforgan - -	5	
	Madderty - -	9	
	Meigle - - -	4	
	Methven - - -	5	
	Moneydie - -	5	
	Monivaird - -	6	
	Monzie:		
	Monzie District } Logiealmond „ }	6	
	Moulin - - -	9	
	Muckhart - -	5	
	Muthill - - -	2	
	Perth - - -	–	No Parochial School.
	Port of Monteith -	9	
	Rattray - - -	6	
	Redgorton - -	6	
	Rlynd - - -	2	
	Scone - - -	5	
	St. Madoes - -	2	
	St. Martin's - -	–	
	Tibbermuir - -	12	
	Trinity Gask - -	9	
	Tulliallan - -	3	
	Weem - - -	2	
Renfrew -	Abbey - - -	13	
	Cathcart - - -	8	
	Eaglesham - -	1	
	Eastwood and Pollock	3	
	Erskine - - -	–	
	Greenock - -	–	No Parish School.
	Houstoun - -	6	
	Inchinnan - -	5	
	Inner Rip:		
	Inner Rip District } Gourock „ }	–	
	Kilbarchan - -	11	
	Kilmalcolm - -	7	
	Lochwinnock - -	11	
	Mearns - - -	12	
	Neilston - - -	8	
	Paisley - - -	–	
	Port Glasgow - -	–	No Parochial School.
	Renfrew - - -	–	ditto.
Ross and Cromarty.	Alness - - -	2	
	Applecross - -	4	
	Avoch - - -	4	
	Barvas - - -	1	
	Contin - - -	10	
	Cromarty - -	2	
	Dingwall - -	–	
	Edderton - -	2	
	Fearn - - -	8	
	Fodderty - -	6	
	Gairloch - - -	3	
	Glenshiel - -	–	
	Killearnan - -	2	
	Kilmuir Easter -	4	
	Kiltearn - - -	7	
	Kincardine - -	5	
	Kintail - - -	2	
	Knockbain - -	6	
	Lochalsh - - -	1	
	Lochbroom - -	6	
	Lochcarron - -	5	
	Lochs - - -	1	
	Logie Easter - -	4	
	Nigg - - -	6	
	Resolis or Kirkmichael	7	
	Rosemarkie - -	4	
	Rosskeen - -	4	

County.	Parish.	Number of Heritors.	Remarks.
Ross and Cromarty—*continued.*	Stornoway	1	
	Tain	3	
	Tarbat	–	
	Uig	14	
	Urquhart	3	
	Urray	7	
Roxburgh	Ancrum	10	
	Ashkirk	8	
	Bedrule	5	
	Bowden	12	
	Castleton	8	
	Cavers	7	
	Crailing	3	
	Eckford	6	
	Ednam	5	
	Hawick	3	
	Hopekirk	8	
	Hownam	8	
	Jedburgh	23	
	Kelso	–	
	Kirkton	4	
	Lilliesleaf	11	
	Linton	5	
	Mackerston	2	
	Maxton	5	
	Melrose	22	
	Minto	4	
	Morebattle	11	
	Oxnam	7	
	Roberton	10	
	Roxburgh	5	
	St. Boswell's	15	
	Smailholm	–	
	Southdean	3	
	Sprouston	4	
	Stitchel	1	
	Wilton	9	
	Yetholm	5	
Selkirk	Ettrick	10	
	Galashiels	4	
	Kirkhope	6	
	Selkirk	13	
	Yarrow	7	
Stirling	Airth	12	
	Alva	1	
	Baldernock	6	
	Balfron	8	
	Bothkennar	8	
Stirling—*continued.*	Buchanan	1	
	Campsie	10	
	Denny	3	
	Drymen	13	
	Dunipace	5	
	Falkirk	15	
	Fintry	3	
	Gargunnock	6	
	Killearn	9	
	Kilsyth	6	
	Kippen	8	
	Larbert	6	
	Lecroft	2	
	Muiravonside	11	
	Polmont	15	
	St. Ninian's	24	
	Slamannard	5	
	Stirling	–	No Parochial School.
	Strathblane	8	
Sutherland	Assynt	1	
	Clyne	1	
	Creich	6	
	Dornoch	4	
	Duirness	1	
	Edrachillis	1	
	Farr	1	
	Golspie	1	
	Kildonan	1	
	Lairg	2	
	Loth	1	
	Rogart	2	
	Tongue	1	
Wigtown	Glasserton	6	
	Inch	7	
	Kirkcolm	4	
	Kirkinner	6	
	Kirkmaiden	3	
	Kirkoward	3	
	Leswalt	3	
	Luce, New	1	
	Luce, Old	6	
	Mochrum	–	
	Penninghame	4	
	Portpatrick	3	
	Sorby	3	
	Stoneykirk	5	
	Stranraer	–	No Parochial School.
	Whithorn	7	
	Wigtown	5	

Crown Office, Edinburgh,
29 July 1869.

Charles Morton, Crown Agent.

APPENDIX.

RETURNS FROM SHETLAND.

1.—From Bressay.

Sir,

In reply to your circular of 9th current, requesting to be informed of the number of the heritors in this parish qualified to vote and attend meetings pursuant to the Act 43 Geo. 3, c. 54, sec. 22, I beg leave to report that there are none such, in consequence of no valued rent appearing in the Land Tax book of this county.

In practice, however, two of the heritors, along with the parish minister, have voted and attended, either personally or by proxy, at all such meetings; it being somehow assumed that all heritors whose *bonâ fide* annual rental amounted to 100 *l.* sterling had, in absence of the requirements of Statute, a right so to do. Occasionally some of the heritors, whose annual rental was under 100 *l.* sterling, attended and voted; their right to do so was denied by the others, but remained unchallenged, probably because they knew that in law the votes thus given were equally good, or rather as invalid, as their own.

I have, &c.
(signed) *John Ross.*

2.—From Delting.

Sir,

I have your favour of the 9th instant, which came late to hand, having been mis-sent to another district. In reply to your request, I beg to say that there are 10 heritors in the parish who are entitled, by the amount of their rental, to vote in the election of, and other matters connected with, the parish schoolmaster.

I am, &c.
(signed) *John Anderson.*

3.—From Fetlar and N. Yell.

Sir,

I am in receipt of your circular of 9th current, and beg to state in reply that, in so far as known to me, the parish ministers are the only parties who have a statutory right to vote at the meetings referred to, there being no valued land in the islands. Until very recently, the terms of the Statute were either waived or misunderstood, as almost all the heritors had a voice in the election, &c., of a schoolmaster.

A parish minister lately called such proceedings in question, and then it transpired that, as no heritor had valued land appearing in the Land Tax books of the county, the parish minister, and he only, possessed the necessary qualification. I do not know whether all the parish schoolmasters of Shetland are aware of this fact.

I am, &c.
(signed) *J. S. Houston.*

4.—From Dundrossness.

Sir,

I received your circular of the 9th current, concerning which I have made careful inquiries, in order that I may be able to give as correct an answer as possible.

It seems that no heritor in this parish, nor in Shetland, is qualified to attend and vote at any meeting held pursuant to the Act 43 Geo. 3, cap. 54, sec. 22. The ancient "Land Tax Books" referred to in this Act never existed in Shetland, probably owing to the Danish usages, which for a long time prevailed in these islands, and therefore there is no valued rent in Shetland. It appears, however, that the parish ministers are qualified to attend and vote at any meeting held under said Act.

In any new Act, it would be desirable that a clause be inserted defining this matter with regard to Shetland.

The

The heritors in the parish, and I believe in most other parishes in Shetland, have been in the habit of considering the pound sterling of their rent in the valuation rolls, equal to the pound Scots of valued rent, and have held meetings, and voted on matters regulated by the aforesaid Act, though not legally qualified to do so; and the following are the heritors in this parish, who meet and vote in terms of this arrangement, with their respective rents as given in the last valuation roll, viz. :—

	£.	s.	d.
(1.) John Bruce, Esq., of Sunburgh - - - -	1,154	–	8
(2.) John Bruce, Esq., junr., of Sunburgh - . -	170	13	6
(3.) Robert Bruce, Esq., of Symbister - - -	972	3	3
(4.) Andrew J. Grierson, Esq., of Onendale - -	461	6	7
(5.) The parish Minister - - - - - -	32	–	–

Hoping that this return may be found satisfactory.

I am, &c.
(signed) *Laurence Johnstone.*

5.—From Lerwick.

Sir,

I have the honour to receive your circular of 9th current, regarding the number of qualified heritors, &c., and have to state that the parish of Lerwick, and other parishes in Shetland as well, are anomalous; there being no "Land Tax Books" in existence throughout Shetland, and consequently the provision of 43 Geo. 3, c. 54, is inapplicable.

In practice, however, all ranking as heritors to whatever extent have hitherto, I speak of Limerick specially, attended and voted, or at least were considered as having a right to do so at every meeting called for parochial school purposes.

The present number of heritors liable in schoolmaster's salary being 158, all claiming the privilege of qualified heritors, and exercising it when opportunity offers.

The parish is a united one, Lerwick and Gulberwick. The heritors who would be qualified, were the School Acts conditions fulfilled here as elsewhere, about six or seven, I think.

I have, &c.
(signed) *James Hunter.*

6.—From Nesting, &c.

Sir,

I have to acknowledge receipt of your letter of 9th current, and, being from home, I am sorry that I have been unable to reply sooner. I beg to state that, according to the Act 43 Geo. 3, c. 54, and as defined in the 22nd section of the said Act, there is no heritor or heritors in the united parishes of Nesting, Lumasting, Whalsay, and Skerries, who are qualified to attend and vote at any meeting held pursuant to said Act (none appearing in the Land Tax books of the county).

I am, &c.
(signed) *John Anderson.*

7.—From North Mavine.

Sir,

In reply to your letter of the 9th instant, I beg to state that the number of proprietors in the parish of North Mavine, the annual value of whose property amounts to 20 *l.* and upwards, is six, and the number below 20 *l.* is nine.

I am, &c.
(signed) *Jas. Bruce.*

8.—From Sandsting and Aithsting.

Sir,

In reply to your circular, I beg to say that the number of heritors who appear in the valuation roll of these parishes possessing rents from 100 pounds Scotch and upwards are 21, but I do not think any of them are valued, consequently merks of land are considered valued rent, by which teinds and school salary are paid in this place.

I am, &c.
(signed) *G. Williamson.*

9.—From Tingwall.

Sir,

In reply to your circular of the 9th current, I have simply to state that in Shetland the old valued rent has never been ascertained or apportioned, and that, strictly speaking, there are no qualified heritors in terms of the Act quoted, and many difficulties have arisen in consequence.

I am, &c.
(signed) *Charles C. Beatton.*

10.—From Unst.

Sir,

In reply to your circular of the 9th instant, I beg to state that the valued rent has never been apportioned in Shetland, and consequently there is no heritor qualified under the Act to attend or vote at any meeting pursuant to the Act. On the occasion of the last two vacancies, in consequence of exception being taken by the parish clergyman, the heritors in the parish could not exercise the privilege of appointing the parish schoolmaster; and the statutory time for the appointment having elapsed, the commissioners for the county were then obliged to act.

I am, &c.
(signed) *D. T. White.*

11.—From Walls.

Sir,

There are 24 heritors in the parish of Walls who had the right to vote when I was elected schoolmaster, and, by the sale of part of one of the estates of the former, there are now 25 who would vote. They do not vote in Shetland by pounds Scots, but by merks land; but there are 11 heritors in the parish who would have a rental of 100 pounds Scots and upwards.

Yours, &c.
(signed) *James Russell.*

12.—From Yell.

Sir,

In reply to yours of 9th inst., I subjoin a list of the heritors here having valued rents above £. 8 6 *s.* 8 *d.*, viz.:

		Merks Land.
1.	Geo. H. B. Hay, Esq., Lerwick, for Gossᵇ. Estate	254
2.	Joseph Leask, Esq., Lerwick	174⅓
3.	J. R. McQueen, Esq., England	144
4.	J. Spence, Esq., Lerwick	88
5.	Jas. Henderson, Esq,, for the Seafield Estate	66½
6.	Geo. H. B. Hay. Esq., Lerwick	53
7.	Major Thomas Mouat Cameron, Annsbrae	48
8.	Robert, per Chas. Hoseason, Esq., Mossbank	34
9.	The Rev. David Webster, for Bousetter	24
10.	Lady Nicolson, for Hascussay	24
11.	Ar. Hay, Esq., for Rt. Hon. the Earl of Zetland	22½
12.	Messrs. David and John Henry Williamson	16
13.	Robt. Irvine, Esq., Lerwick	11
14.	Mr. Giffard, for the Busta Estate (Biggay)	10
15.	The Rev. James Barclay	9
16.	Mr. Basil Pole	9
17.	Geo. Henderson, Esq.	8
18.	Thos. Adie, Esq., Voe	4½

Of these 18 heritors qualified to vote, per 43 Geo. 3, c. 54, the 15th, 16th, and 17th only are resident to attend at any meeting under the Act. The rest have generally adopted the plan of voting by mandate and proxy.

I am, &c.
(signed) *Andw. D. Mathewson.*

PAROCHIAL SCHOOLS (SCOTLAND).

RETURN of the Number of HERITORS qualified to attend and vote at any Meeting held pursuant to the Act 43 Geo. 3, c. 54, defined in the 22nd Section of the said Act, in all Parishes in *Scotland* in which a PAROCHIAL SCHOOL is established.

(*Sir Edward Colebrooke.*)

Ordered, by The House of Commons, *to be Printed*,
9 *August* 1869.

411.

Under 2 *oz.*

[4151] Technical Education in Germany & Switzerland - Report.

[4207] Technical Education in Sweden. Report.

The above Reports, being in an 8vo. Shape, are bound at the End of Vol. XX.

NEW COURTS OF JUSTICE.

RETURN to an Order of the Honourable The House of Commons, dated 4 March 1869;—*for*,

COPY "of the REPORT made by Mr. *F. W. Sheilds*, C.E., on the subject of the SITE for the NEW COURTS of JUSTICE and their Approaches."

Treasury Chambers, 5 March 1869.

ACTON S. AYRTON.

To the Right Honourable the Chancellor of the Exchequer, &c. &c. &c.

3, Delahay-street, Westminster,
17 February 1869.

Sir,

I HAVE the honour to acknowledge Mr. Rivers Wilson's letter of the 15th ult., informing me that the Chancellor of the Exchequer, understanding that I had given considerable attention to the question of the New Courts of Justice and their Approaches, will feel much obliged if I will favour him, in writing, with my views on the subject.

In compliance therewith, I beg to present the following Report:—

There are two sites proposed for the Law Courts. The first lies to the north side of the Strand, and to the west of Temple Bar, and is bounded by Carey-street, the Strand, and Clement's Inn. The second is on the south side of the Strand, nearly opposite to the first, and is inclosed between Somerset House, the Strand, the Temple, and the new road along the Thames Embankment. The adoption of one or other site is now a question of great public interest, and I will endeavour, in accordance with your desire, to state concisely my views on their respective merits.

The public requirements, whereof the attainment in a greater or less degree should, I think, determine the selection of either site, appear to me mainly to be as follows:—

1st. Architectural effect afforded by the site.
2nd. Uniformity of level of its surface.
3rd. Economy of its acquisition.
4th. Its accessibility, or the convenience of its public approaches.

1st. In comparing the architectural effects to be obtained from either site, the superiority of the river frontage is obvious. The wide road along the Thames Embankment and the open river beyond it, afford advantages in this respect as yet unequalled in London; and the Courts, when viewed from the direction of the river, would in this position above all others display the effect of a great national monument. It should be stated, however, that the great difference in level between the Strand and the Embankment road, amounting to fully 30 feet, appears to involve much inconvenience, both in creating difficulty of access to the main floor of the building, and in deteriorating the architectural effect of the second front towards the Strand.

2nd. The advantage of uniformity of level in the site is to admit of access from the adjoining streets to the main floor of the building, as far as possible without the intervention of steps. In this respect neither of the proposed sites is free from inconvenience; and in order to compare them properly it is necessary to describe more precisely their positions and levels.

The proposed sites both abut upon the Strand, and are nearly opposite to each other. The first site is inclosed, as already stated, between Carey-street and the Strand; and the second is inclosed between the Strand and the New Thames Embankment street. These three streets are parallel to each other; the Strand

being

being in the centre, and the others at an average distance of about 200 yards on either side of it. The level of Carey-street is 16 feet higher than the Strand, and the level of the Strand is 30 feet higher than the Thames Embankment.

It is most desirable in either case to provide easy access to the main floor of the building from both the streets adjoining it as described; and it is seen at once, from these levels, that the Carey-street site offers considerably more facility for the purpose.

3rd. The question of the comparative cost of either site is considerably affected by the steps already taken. The Government have purchased and cleared of buildings the Carey-street site to the extent of about seven and a half acres, and at a cost of about 800,000 *l.* It is evident, therefore, that if the Carey-street site be now abandoned, and the Law Courts placed on the Thames Embankment, the sole return for this expenditure would be that arising from the re-sale of the ground alone upon which those buildings stood. A considerable loss, therefore, must accrue in this case; and in respect to the Thames Embankment site, that loss must be added to the amount required for its purchase.

In order, therefore, to obtain a reliable estimate of the comparative cost of either site, I have requested Mr. Edward Ryde to ascertain their values. The following is an abstract of his figures (as given in his letter annexed) :—

	£.	£.
Cost of the Carey-street site of 7½ acres (being 106,666 *l.* per acre) - - - - - - - -		800,000
Estimated cost of a portion of the Thames Embankment site equal in area to the Carey-street site; say, 7½ acres at 150,000 *l.* - - - - - -	1,125,000	
Estimated loss on the Carey-street site if re-sold, to be added to the cost of the Embankment site as stated above, - - - - - - - - -	400,000	
		1,525,000
Excess of cost of the Thames Embankment site over that of Carey-street - - - - - - - - - -	£.	725,000

4th. The question of the public approaches to either site now remains to be considered.

The Strand, as already stated, forms an approach common to both sites, and thus far they may be considered on an equality. The Carey-street site, however, has no main thoroughfare on its northern side, which is inaccessible to any large amount of traffic, so that virtually it would depend for public access upon the Strand alone. The other site, on the contrary, has, in addition to the Strand, the new and capacious street on the Embankment running along its river front. This street will extend from Westminster to the Mansion House: it will be traversed by the Metropolitan District Railway; and it will be in direct communication with the landing piers for the river steam-boat passengers. It follows therefore that, in respect of the approaches, the Embankment site has great advantage over that of Carey-street.

It appears to me, in truth, that whichever site be adopted, the question of its approaches requires the most careful consideration. If the Carey-street site be selected, the Strand and Fleet-street must be the principal access to it; and if the Embankment site be preferred, the same thoroughfare, being more central than the Embankment road, will have not only to convey much traffic to the Law Courts, but will be crossed and blocked by vehicles passing between the Courts and Holborn. The narrow portion of the Strand and Fleet-street for a considerable distance adjoining the proposed sites has long been inadequate for the public accommodation. But with the great additional traffic which will be caused by the concentration of the Law Courts on that narrow and crowded street, I can foresee no other result than to render the Courts extremely difficult of access, and to create such a blockade of the most essential thoroughfare of London as will prove intolerable to the public.

It seems to me unwise to ignore these considerations, or to adopt a plan failing to provide at the first the approaches to the Courts which in the end will be indispensable. It is difficult to devise means for the complete attainment of this object within reasonable limits of cost. Yet feeling that my Report would be incomplete without such a suggestion, I beg, after much consideration, to propose a plan to meet the difficulty.

In

In reviewing the comparative merits of the two sites, it appears that the Carey-street site, though inferior in architectural effect, has the advantage of the Embankment site in some important particulars. Its adoption, as appears from the estimates of Mr. Ryde, would save a further expenditure of 725,000 *l.* of public money. Its level is better suited for external access. Its position is much more central and convenient, being midway between the Temple and Lincoln's Inn, and also midway between the great thoroughfares of Holborn and the Strand. Its great defect, which turns the balance against it, is the want of a leading thoroughfare on its northern or Holborn side. It appears to me, therefore, that if this deficiency were provided for, the Carey-street site would be the more advantageous both for the legal profession and for the public.

My plan for effecting this object is to carry a wide street, in continuation of Piccadilly and Long Acre, through Carey-street to Cheapside. This new street, the course of which is shown on the accompanying map,* would be continued from Long Acre by Covent Garden and Drury-lane theatres, to pass along the northern front of the Carey-street site, and from thence it would be extended (crossing the Farringdon-street valley by a viaduct) to the end of Cheapside at St. Paul's. It is proposed, also, to widen the passage called "The Turnstile," at the eastern end of Lincoln's Inn Fields, so as to give a direct communication for carriage traffic between the Law Courts and Holborn.

These improvements would provide complete approaches to the Carey-street site. The new road to Cheapside would relieve the Strand from the traffic between Piccadilly and the City, and thus more than compensate it for the additional traffic occasioned by the Law Courts. It would also intercept the cross traffic from Holborn to the Courts, which must be thrown into the Strand if the Embankment site be adopted.

It is needless to dwell on the local improvement to the metropolis resulting from this street. The thoroughfares between the western districts and the City have been for years becoming more and more impassable from excessive traffic. The new street would be a remedy for this great evil.

I now propose to consider the means by which funds for these improvements may be provided.

The new streets would, in the first instance, be necessitated by the Law Courts, which will be the property of the nation. But the street in prolongation of Piccadilly would also afford the additional communication from the West End to the City, which is the great and acknowledged want of London. Under these circumstances, it follows that the cost should be shared, in such proportions as may be decided to be equitable, between the Government and the metropolis.

It may be said, on the one hand, that the Government representing the nation is not called upon to contribute to the local improvement of London. But, admitting this principle even to the fullest extent, the converse is true also. The nation is not entitled to inflict injury upon the metropolis, and it is but reasonable that the Government, if its measures obstruct the leading thoroughfare of the City, should at least contribute towards the remedy of that evil.

Again, it may be said that the Government having concentrated the Law Courts should itself construct the approaches to them which are indispensable. But if those approaches provide the increased accommodation so urgently required for the traffic of London, it appears right that the metropolis also should contribute to their formation.

Furthermore, it appears to me that there is yet another source from which a large contribution might be obtained towards these improvements, and other great public advantages be realised in addition.

It is well known that the Metropolitan District Railway Company are carrying their line along the Thames Embankment: and that, as this privilege enables them to avoid the purchase of property, they contribute a considerable sum towards the Embankment works in return for it. This precedent would be applicable also to the improvements now under consideration.

The utility of an underground railway along Knightsbridge and Piccadilly would be unquestionable. The Metropolitan Line affords no accommodation to their enormous traffic. The extended frontage of Hyde and Green Parks would allow a tunnel to be constructed along the park side of the street without the least interference with private property. The wide road to Brompton at the one end, and the prolongation of Piccadilly to the City at the other, would afford

* In the Library of the House of Commons.

afford peculiar facilities for extending the line in both directions. If a company, therefore, were authorised to construct such a railway, the public advantage of it would be manifest. There would be, as in the case of the Thames Embankment, a contribution obtained from the company towards the formation of the new streets; and the benefit of railway accommodation would be afforded, not only to the Law Courts but to all places on the Piccadilly route to the City.

With this view, I have designed a railway, as shown on the accompanying map, from the junction of the Fulham and Cromwell Roads, near the Kensington Museum, to the Mansion House. Its length would be nearly four miles. It would follow the Brompton-road, Knightsbridge, Piccadilly, Coventry-street, Leicester-square, Long Acre, and the proposed new street in continuation of it through Carey-street to Cheapside, and Cheapside itself to the Mansion House, and it would terminate in the new street now in course of construction from the Mansion House to Blackfriars Bridge.

The railway is also laid out so as to effect other important improvements without cost to the public. It is proposed, as part of the railway expenditure, to widen Coventry-street, Long Acre, and the Poultry, the space so acquired being made available in the construction of the line and stations; also to raise the bottom of the Serpentine to an uniform depth of four feet with the material excavated from the railway tunnel, and to cover it with concrete, as has been done in the ornamental waters of the St. James's and Regent's Parks. It is needless to dwell on the advantage of these improvements to the metropolis.

I now submit an Estimate for carrying out the entire undertaking; the value of the property to be purchased for the purpose being also estimated and furnished to me by Mr. Ryde, according to his letter annexed:

ESTIMATE.

1. Railway.—Length of Line, Four Miles nearly.

	£.	£.
Construction.—Engineering works, stations, rolling stock, Parliamentary and other expenses, management, and all contingencies - - - - - - - - - - - -	930,000	
Purchase of Property,—for stations, and for the widening of Coventry Street, Long Acre, and the Poultry (being Mr. Ryde's Estimate of Net Cost) - - - - - -	750,000	
		1,680,000
Capital.—Assuming that the net receipts amount to 600 *l.* per mile per week, or 124,800 *l.* per annum, and that this net income be sufficient to pay six per cent. on the capital; the amount of the capital would in that case be - - - -	- - -	2,080,000
Balance,—representing the contribution to be paid by the Railway Company towards the formation of the new street in prolongation of Piccadilly to Cheapside, in consideration of their being allowed to carry the line along that street, and so avoid the purchase of property - - - - - -	- - -	400,000

2. New Streets Estimate.

	£.	£.
Cost of formation of new streets, with all modern improvements - - - - - - - - - - - -	185,000	
Purchase of property (being Mr. Ryde's Estimate of Net Cost)	1,415,000	
		1,600,000
Less,—contribution from the Railway Company, as above mentioned - - - - - - - - - - - - - -	- - -	400,000
Net cost of the new streets, which cost is proposed to be divided, in such proportions as shall be adjudged equitable, between the Government and the Metropolis - - - - -	- - -	1,200,000

I have, &c.
(signed) *F. W. Sheilds.*

NEW COURTS OF JUSTICE.

COPY of the REPORT made by Mr. *F. W. Sheilds*, C.E., on the subject of the SITE for the NEW COURTS of JUSTICE and their Approaches.

(*Mr. Dodds.*)

Ordered, by The House of Commons, *to be Printed*,
8 *March* 1869.

68. ✣

Under 1 *oz.*

NEW COURTS OF JUSTICE (SITE).

RETURN to an Order of the Honourable The House of Commons, dated 28 May 1869;—*for*,

COPY "of PLANS for the NEW LAW COURTS on the EMBANKMENT SITE, with a LETTER from the ARCHITECT."

To the Right Honourable the First Commissioner of Works, &c., &c.

5a, Portugal Street, Lincoln's Inn Fields,
Sir, 24 May 1869.

In compliance with your request I have prepared two sets of plans, which I have the honour to send you herewith.

Three of these plans show how the proposed New Courts of Justice may be placed on the site selected for the purpose by you, and lying between the Embankment roadway on the south, Howard-street on the north, King's College on the west, and the Temple on the east.

The other two plans show how a building of similar contents might be planned so as to occupy the site already purchased on the north side of the Strand, without any additional purchases of land whatever.

The adoption of the new site on the Embankment, or of the old site on the north side of the Strand (without any purchase of additional lands), would equally involve an entire alteration of the plan which I prepared under the direction, and which received the approval, of the Courts of Justice Commission. That plan depended entirely on my being able to widen Carey-street on the north side, and to alter the boundaries of Clement's Inn and Bell-yard. Without this power, for which additional purchases of land were absolutely required, my scheme was impossible.

In the case of both sites, I may observe, that as the area to be covered with building is so much smaller than was originally proposed, it will be necessary to omit many departments which were included in my former plans. On neither site would there be any possibility of finding space for all the offices of the Probate and Divorce department; and probably the Appellate Court, the Bankruptcy Department, the Admiralty Offices, the Land Registry and Middlesex Registry, or some of them, might also have to be omitted. It does not come within my province to suggest which of these departments should be included, and which omitted, but they would be about the same on either site. I propose also to reduce the number of Courts to eighteen in all, with the addition, if required, of a large spare Court. The Court of Appeal would then have to remain in Downing-street, and there would be no provision for a Bankruptcy Court.

With these prefatory remarks, I proceed to report upon the advantages which the two sites offer, and to explain the principal features of my plans, and, for convenience, I shall take the scheme for either site under the same heads, *seriatim*.

These heads will be—

(A.) *Approaches to, and roads round, the building, and character of surrounding buildings.*

(B.) *Light, quiet, and air.*

(C.) *Arrangement of building involved by the nature of the site, and its surroundings and levels.*

(D.) *Advantages or the contrary afforded by levels of ground.*

(E.) *Advantages or the contrary from an architectural point of view.*

PLAN FOR PLACING THE NEW COURTS ON THE THAMES EMBANKMENT.

Embankment Plan.

Approaches.

(A.) The approaches to the building are shown on the accompanying block plan. They are many, and in every respect admirable. They possess the merit, which cannot be too much dwelt upon in the case of such a building, of being not only ample for the purpose, but also of being such as would for the most part be free from all noisy traffic, except that which is coming to the building itself. The Embankment roadway will probably never be a very great thoroughfare for carriages; but, if it were, the space between the road and the front of the buildings, and the vast open space on the river side of it, would prevent the traffic ever being an inconvenience in the way of noise. The Metropolitan District Railway appeared at first to present a very serious difficulty, the station authorised by the Act of Parliament being opposite the centre of Norfolk-street, with a long opening above it for the purpose of ventilation and light. I am glad to be able to report, however, that all difficulty on this point seems to be capable of easy remedy. I have gone into the matter with the engineer of the railway, Mr. Fowler, who, at my suggestion, has prepared a plan showing how the railway station might be moved to the bottom of New Essex-street, whilst the ventilation and light are provided for by two moderate openings in front of the south-east angle of the New Courts of Justice, and a third in the angle of the Middle Temple garden. I have ascertained that there would be no objection on the part of the Benchers of the Middle Temple to this concession of an opening in their garden; and I am of opinion, that with these alterations the neighbourhood of the railway will do no great damage to the proposed building, whilst the convenience of having a station so close to it cannot be exaggerated. The station will also be more convenient for the public, being at the end of a fine new street, and close to the steamboat pier, which again will be most usefully placed as affording excellent access by water to the new Courts.

On the east side of the building, it is proposed to form a new street, following to some extent the line of Essex-street; this will involve the purchase of the whole of Essex-street, and will enable me to deal with the gradients of the new street in the most convenient manner. A continuation of this street across the land already cleared on the north of the Strand would join Carey-street just opposite the end of Serle-street, and so form a junction with Lincoln's-inn Fields.

On the north side of the building an entirely new street would be formed. Howard-street would be widened by the purchase and alteration of the houses on its north side, and would be lengthened so as to be the whole length of the new building from King's College to Essex-street.

Finally, a street would be left on the west side of the building, opening under an archway to the Embankment, and continued as far only northward as Howard-street.

These streets would afford on every side admirable accesses to all parts of the building for the general and professional public. But, besides these, it would be possible to make use of two other modes of approach which might be most useful.

The first of these is the Terrace carriage-road, which already exists in front of Somerset House. By a few trifling alterations this may be opened to the Waterloo-bridge-road, and continued on to the angle of the new building, so as to give carriage access for the use of the Judges very nearly to the level of their own rooms; and an entrance from the same terrace would give access, by a few steps down, to the attorneys' rooms and corridor below the Judges' floor.

The other mode of access is not one which I can do more than throw out a suggestion for, but it seems to be worth mention, as indicating a mode in which the complaints of the separation of the Courts from Lincoln's Inn, by the Strand, may, at any rate, to some extent, be met. You will have to resell the land purchased in Essex-street, and to pull down the houses for rebuilding; and it appears to me that in doing this it might be possible to set back part of the fronts

EMBANKMENT PLAN.

Approaches.

fronts of the houses behind open arcades, so as to afford communication with the north side of the Strand by a bridge on the east side of St. Clement's-churchyard, and, if thought desirable, by a tunnel at the same point. A passage might be carried at a level from the base of the north-east angle of the building, and as the difference of level between the Strand and Essex-street at this point is 14 feet, it might pass under the Strand roadway, and rise with steps to the level of the ground on the north side of the Strand. This passage would occupy the area in front of the lowest floor of the new houses east of Essex-street. At the same point, a bridge rising about 25 feet above the Strand, would give access on the same level to the rooms and offices above the Judges' rooms in the new building, so as to make them, in fact, very much more accessible than they would otherwise be. I make these suggestions in order to show that the position of the new building on the south side of that great thoroughfare, the Strand, may, if proper steps are taken, be so manipulated as to prevent any inconvenience arising to the vast number of lawyers and lawyers' clerks who will daily have to come to the new building from the other side of the Strand. The passage from the Strand-bridge to the second floor of the new offices would be treated somewhat like one of the well-known "rows" at Chester, whilst the passage to the tunnel would be an open one, and the tunnel itself might have an opening opposite the end of St. Clement's Church, for light and ventilation, without interference with the Strand traffic. It is important to observe that these means of communication with the new building would be really useful, without involving any ascending of staircases on one side of the Strand for the sake of descending on the other. All experience shows that people will not make unnecessary ascents of this kind; but if you can provide passages without such drawbacks, then they will use them, and so avoid the inconvenience or danger of the Strand crossing.

It may be as well here to say that the exact distance from the south-east angle of Lincoln's-inn Fields to the north-east angle of the proposed building will be two furlongs and 47 yards, whilst the distance from King's Bench-walk, in the Inner Temple, to the same part of the building will be one-and-a-half furlongs. This north-east angle of the new building will be the natural entrance for barristers, and, if it is desired, it will be easy to make a bridge across Essex-street at this point, communicating with Fountain-court, Middle Temple. It may also be as well to observe that the distance from the south-east angle of the new building to the existing offices of the Probate and Divorce Court, in Doctors' Commons, along the Embankment roadway and the new road to the Mansion House, will be as nearly as possible half-a-mile.

I say nothing as to the more distant approaches to the building. It is obvious that where so many good and distinct modes of access exist, the more distant approaches will never be crowded by reason of the existence of this new building. The traffic will distribute itself, or filter, so to speak, into the Strand, and from thence, through no less than four practicable streets—Surrey, Norfolk, Arundel, and Essex-streets, to the Courts; whilst the Embankment road, the railroad, the river, and the approach in front of Somerset House, will very largely assist in distributing the traffic equally to the various entrances all round the building. Distant alterations of approaches on the north side of Carey-street would not, therefore, be properly chargeable to the New Courts; they would be metropolitan improvements in the strict sense, and not a necessary consequence of the new building, which would, in fact, be only very slightly benefited by them.

I have always laid great stress on having the surroundings of such a building as the New Courts of Justice of good and harmonious character, and such as could not in any way affect the proper and convenient use of every part of it; and on this site they will be singularly good. On the south, we shall have the outlook on the finest river, I suppose, of which any capital in Europe can boast. On the east, almost the whole buildings will have the benefit of the Temple-gardens, and the distant sweep of the river to Blackfriars, and you will provide, no doubt, that the new buildings which will replace the existing Essex-street houses will be erected with strict conditions that they shall be in harmony with the new building, and confined entirely to the use of barristers or solicitors. So, again, on the north side of Howard-street, and its prolongation, the whole property will pass through the hands of Government, and whether the opportunity is taken to provide here for refreshment rooms, for law stationers and booksellers,

EMBANKMENT PLAN.

Approaches.

booksellers, or for chambers, it will equally be certain that the buildings need be in no way an inconvenience, or an eyesore to the occupants of the New Courts. On the east side, the prospect will not be so cheerful, owing to the singularly lugubrious character of the King's College buildings. But there will be nothing otherwise objectionable in it; the light will be good, and from the whole of the three upper ranges of windows it will be possible to see across the river to the Surrey side of Waterloo-bridge. To conclude, it is difficult therefore to conceive a public building being erected on any site in London with greater advantages in its surroundings than this site affords.

(B.) Light, quiet, and air.

(B.) WHAT I have already said as to the surroundings of the new building bears to a great extent also on the quality of the light, quiet, and air which it will enjoy. But I may say that I have always maintained that, if the admirable light and air afforded by the river are to be made the most of, it must be by making some considerable opening into the heart of the building from the Embankment. With this view I propose to arrange the bulk of the offices to the east of the Courts round a spacious quadrangle, which will be open on its southern side to the river, so that all the rooms which surround it will partake of the vast advantages which the river side of the site affords. So, again, on the eastern and western sides of the site, owing to the position of existing buildings, the light and air will leave nothing to desire. On the northern side they will be the same as in all other London streets of good width, neither better nor worse. The whole of the site will have unusual advantages as regards quiet. There will be foreign traffic on one side only, viz., down Essex-street; but I suppose this would never be very great in quantity. And there would, no doubt, be some annoyance to the south-east angle of the offices from the passage of trains. This annoyance I have endeavoured to reduce as much as is possible, and it will not affect any other part of the building.

(C.) Arrangement of building to suit site.

(C.) THE SHAPE of the ground is so completely different from that which I had to deal with in making the previous plans, that I have had to re-arrange my whole scheme. My principle was, from the first, to separate the Courts from the offices by internal streets and quadrangles; and, in the plan approved by the Courts of Justice Commission, this principle was carried out as completely as possible. If it can in any way be accomplished, I am persuaded that this is the arrangement which will secure the greatest simplicity and ease in the use of the building, and cause the least confusion; and though I think it will be impossible to secure it completely on the Embankment site, I have still kept the same principle in view, and have adhered to it as closely as I could.

The broad feature of my plan now is, that I put the Courts, central hall, and all the rooms for juries, witnesses, and the public, to the western side of the site, and the great group of offices round a quadrangle to the east of it. But, as the upper and lower portion of the buildings which surround the central hall and Courts would not be required for their use, I propose to provide some of the offices, as, *e. g.*, the Vice-Chancellors' chambers—above and below the Judges' rooms. They are so planned as to staircases and mode of access as, I believe, to minimize any confusion which might otherwise arise from their neighbourhood to the Courts, and their position will no doubt be felt by the Judges to be better than it would have been in my former plan.

The arrangement of the Courts and rooms connected with them is substantially the same that it was in the plan approved by the Commission. In that plan I was always pinched for space between the Strand and Carey-street, and I was compelled therefore to make the small internal areas for lighting the rooms below the Courts themselves smaller than I would have wished. I am able, in the new plan, to give a few more feet to each of these areas, and so to make a great improvement by putting the jury rooms immediately under the Courts, whilst I also improve the jury staircases, and provide lobbies at the back of the bench to all the Courts, as well as improve the light to a number of rooms and corridors.

I propose to give the public an entrance to the central hall in Howard-street, opposite Norfolk-street, and other entrances at its eastern and western ends. In this way every facility will be given for access to the Courts which surround this hall, whilst it will not form a natural line of thoroughfare for people who have

EMBANKMENT PLAN.

Arrangement.

have no business to transact in it. The public coming from the railway, the steamboats, or the Embankment, will all enter by the eastern quadrangle. But, to prevent the annoyance which would be caused if this were used as a public carriage thoroughfare, I propose to make its pavement at two levels, divided by a terrace or flight of steps across the centre. Carriages then will be able to enter the quadrangle either from the north or from the south, but will have to return by the way they came.

A good deal has been said as to the access for the Judges; and as it has been held to be important that they should not have a great height to mount to their rooms, I propose to avail myself of the roadway already existing on Somerset House-terrace for their benefit. They will probably always come to the Courts from the Embankment roadway, and I assume that some carriage access will be contrived from thence to the western side of Waterloo Bridge, so that they will be able to drive or walk to an entrance only some 10 or 12 steps below the level of their own rooms. Here they will have, as in my previous plans, a continuous corridor, entirely without disturbance by the professional or general public, whose staircases will not open into it. I can also provide a Judges' entrance in Howard-street, or on the Embankment, if it is thought desirable to have either of them.

The Bar rooms will, I think, be best placed to the north-east of the central hall, where they will be most easy of access from both the Temple and Lincoln's Inn.

The detailed arrangement of the offices, to which I have devoted some months of continuous and earnest labour, and which had received the assent, not only of the Courts of Justice Commission, but also of almost all the heads of departments, will all require re-consideration and re-arrangement. The knowledge which I have of the requirements of the various offices, and the plans already approved, will, of course be of great assistance to me in making fresh plans. How far the amount of accommodation asked for is to be granted or curtailed will probably require some reconsideration, if the cost of the building is to be strictly limited to a fixed sum. But it is not out of place here to say that soon after my appointment as architect to the New Courts, I applied for the appointment of a sub-committee to go through all the provisions for rooms contained in the "Instructions to Architects" issued by the Commission, and that, with their assistance, the requirements were reduced by nearly 40,000 superficial feet. I believe that still further reductions may be made in some of the offices, and that it might be well to have accurate plans made of all the offices in which the business is transacted at present, so as to be able to judge fairly of the amount of enlargement which may properly be asked for and granted, with a view to facilitating the progress of business, and meeting the just requirements of the officials.

(D.) Advantages afforded by levels of site.

(D.) THE SLOPE of the ground from the Embankment up to Howard-street is rapid, and, at first sight, presented considerable difficulties, there being a rise of no less than 23 feet from the Embankment to the highest point of Howard-street. I have bestowed considerable pains on this part of the subject; and I think I see my way to using these levels so as to make them rather an advantage than the contrary to the convenience of the building. In the first place, I have found it necessary, on various grounds, to give up the idea (which was propounded by the first promoters of the Embankment site) of raising the whole building upon an artificial substructure to the level of the Strand. The expense of such a substructure would be counted by hundreds of thousands of pounds, whilst there could be no compensating increase of convenience, but rather a great deal of inconvenience.

I have preferred to adopt the more common-sense plan of taking the levels of the ground as they are, and building to suit them. And the advantage of this course is, that I am able to make entrances at various levels, and so to give many offices the practical effect of being on the ground floor, which, on a level site, would have to use flights of steps up or down. Thus I have ground floor entrances on the Embankment, and at higher levels in Essex-street, and still higher in Howard-street, and from Somerset House-terrace. And, if my suggestion of a bridge across the Strand is ever adopted, there will be the still further advantage of enabling people to go from the Strand to the upper part of

EMBANKMENT PLAN.

Levels.

the building, with an extremely moderate ascent of steps. I have marked the levels of the various streets and rooms on my block plans with the levels above the Ordnance datum line ;* and I think a little study of these will explain better than words can the levels of the principal parts of the building. The floor of the central hall would be 4 feet below the Howard-street entrance, and about 15 feet below the Strand. The Courts would be arranged, as to their level in relation to the hall, precisely as they were in the plans approved by the Courts of Justice Commission ; and their floor would be 11 feet 6 inches above Howard-street (*i.e.* exactly on a level with the Strand). The Attorneys' corridor would be 1 foot 6 inches above the Howard-street entrance ; and the Judges' corridor 8 feet 6 inches above the Terrace entrance, and 15 feet 6 inches above Howard-street, supposing it is thought desirable to give the Judges an entrance on this side as well as at the south-west angle.

(E.) Architectural advantages.

(E.) BEFORE I thoroughly went into the question of a design for the Embankment site, I had not realized some of the advantages which it affords. It is true that I allowed, in the discussion on the subject at the Society of Arts Rooms, that the Embankment site was preferable to that on the north side of the Strand ; but I protested against the unfair disparagement of the latter site, as it was proposed to be formed by means of additional purchases, and I pointed out how these had enabled me to design a building, which would not only be very convenient and very conveniently placed, but which would also, I hoped, be an ornament to London. At that time I had thought of the Embankment building as raised on a terrace like that in front of Somerset House. I foresaw that my building would then rise far higher than Somerset House, and that the suggestion made by some one to add a storey to Sir W. Chambers' building was not one which I could ever endorse. I foresaw also considerable difficulty in planting my building on the curved line of the Embankment, without danger of producing an unpleasant result. But in working out the plan to suit the site, I think, as is so often the case in architectural designs, that the very difficulties of the case have proved to be in the end its greatest gains. It is so difficult to do more than express an opinion in a Report on such a point as this, that I have thought it best to make a rather careful drawing, showing what the effect of the building would be from a possible point of view. This drawing (which, as regards architectural detail, must of course be regarded as only a rapid preliminary sketch) is now before you, and, I think, shows how very great an opportunity the site offers for a very grand architectural composition, without the slightest sacrifice of the usefulness of the building. The somewhat irregular frontage of the Embankment is met by advancing the eastern end of the building as near as the railway will allow to the roadway. In this way I have contrived to make the general line of frontage of the new building very nearly parallel with the line of the Embankment wall. In front of my great quadrangle I have introduced what would, I think, be a striking feature—a grand circular colonnade. This circular arrangement is most convenient, as giving a regular termination to the internal quadrangle, and also a regular line when viewed from the outside in connection with the curve of the Embankment wall and road. The irregularity of the frontage gives opportunity for extremely good effects of light and shade, on which, above everything, I lay great stress in a building of such long frontage ; and it involves also a necessity for contrast with the front of Somerset House, which I cannot but think is a fortunate necessity. In architecture nothing is more effective than contrast naturally obtained. And I can conceive no less satisfactory mode of dealing with a building on this Embankment site, than any attempt to repeat the somewhat monotonous lines of Somerset House in a building which, if it were designed and planned on the same system, could not be either in a line with it, or parallel with the Embankment wall, and must therefore offend the eye in every point of view.

One very great advantage which the building will have consists in the various points of view from which it can be seen. From Waterloo Bridge (from the farther end of which my drawing is taken) I find the view will be most admirable, because not only will the whole front be seen, but owing to the height of the bridge above the Embankment, the central hall rising above and behind will also be well seen, and will have the most important effect in binding together

* This is 14 feet below the level of the Thames Embankment roadway.

together and combining the general features of the composition. Again, any one who goes to Hungerford or Westminster Bridges, and notices the gap between Somerset House and the Temple, will see at once how much such a space will be beautified by the occurrence of a succession of bold vertical lines, forming a varied sky-line, an effect which I think the disposition of my plan will give very completely.

Embankment Plan. Levels.

It is important also to say here that in the drawing I have made I have taken no liberties whatever with existing buildings. The space between Somerset House and the New Courts will be exactly as I have shown it, and an even better space for seeing the eastern side of the building will exist between it and the Temple Library.

Architectural effect.

The top of the parapets of my building will be as nearly as possible level with those of Somerset House, and the raised portions of my design—the central hall and the towers—will be so far removed from Somerset House as not to affect it. On the other hand, by omitting a terrace in front of my building, I not only am able to utilize the whole of it, but at the same time my building gains enormously in apparent height.

The general line of frontage is advanced as far as the front of the terrace of Somerset House. This is, of course, a great advantage to my plan, and does no harm, in my opinion, to Somerset House. If the building were set back to a line with Somerset House, it would be hardly at all seen by any one coming from the westward, whereas, as I have planned it, one of the very best views would be obtained from this direction, and Somerset House Terrace is so large an erection that it may properly be taken as the building line for anything which is built on this part of the Embankment.

PLAN FOR PLACING THE NEW COURTS ON THE SITE BETWEEN THE STRAND AND CAREY STREET.

Carey-street Plan.

I proceed now to give a similar explanation of the plan which I have prepared to show how the already purchased land between Carey-street and the Strand may be used for the New Courts of Justice, *without the purchase of any additional land whatever*. In the instructions which I received from you to prepare this reduced sketch plan, you requested me to bear in mind that the ascent to the court level by staircases from the street must be of no greater height than would be the case on the Embankment site, and that the same facilities for carriage access, &c., must be provided on the one site as on the other. The plan I have prepared fulfils these conditions as far as possible, I believe, and may be considered under the same heads as that for the Embankment site.

(a.) Approaches to and roads round building, and character of surrounding buildings.

(A) The obligation to confine such a building within the land already purchased is one which puts the greatest difficulties in the way of a satisfactory arrangement of the plan. It is perfectly obvious that no one can have sanctioned the purchase of such a site with the impression that the purchases were to terminate with those which have been already completed. Nothing, as will be seen by my plans (where the boundary of the land already purchased is marked by a red line), could well be less convenient than the outline of the site, and no provision is made for the amendment of any of the buildings surrounding the site, or of the approaches to it. The difficulties connected with this subject were made apparent as soon as the competing architects were first of all consulted, and, after some discussion, they were finally informed that they might all assume that they were to deal with a site measuring 510 feet from north to south, and that they might make a give-and-take arrangement with the property on the western side of the site, so as to make its general outline rectangular. These directions turned out to be so vague and elastic that no two of the competitors dealt with exactly the same ground, though all of them without exception assumed that additional land would be purchased or obtained by exchange.

In order to provide approaches of some kind to a building on this site, it will be necessary to convert Bell-yard and Carey-street into wide streets, and to make entrances to the office quadrangles from Bell-yard and from Pickett-street. The Pickett-street entrance will be used by all vehicles coming from

CAREY-STREET PLAN.

Approaches, &c.

the west; Bell-yard by those coming from the east; and Carey-street by those which come from the north. The Embankment road and railway will send all their passengers up by Norfolk, Surrey, and Arundel streets to the Strand, and so on by Pickett-street to the Courts. But I apprehend that the Embankment roadway would not be very much used for a building on this site, and that most vehicles would come to the Courts from the City by Fleet-street, and from the west-end by the Strand. Some alteration of the block of houses between Holywell-street and the Strand, near St. Clement Danes, might be required, in order to make this access convenient; and no doubt the removal of Temple Bar would also be felt to be a very great gain, if it could be accomplished. On the north side there is more difficulty. Every vehicle coming to the Courts from this side would of necessity come by Chancery-lane, by Serle-street, or by Portugal-street and Carey-street. All these are very bad streets. The narrowest part of Serle-street is 16 feet 6 inches between the foot pavements, and 26 feet 10 inches between the houses. The narrowest part of Portugal-street is only 18 feet between the houses and 15 feet between the pavements, and at the junction of Portugal and Carey streets there is a width of road of 15 feet, and a total width of 26 feet.

These dimensions are all such as to make some alteration imperative, if any additional traffic is to be brought into these streets, as it certainly would be by the erection of the New Courts on this site. Either Serle-street must be widened, or the road on the western side of Lincoln's-inn Fields must be prolonged southward until it meets Portugal-street, and the latter must be improved and widened until it joins Carey-street. This is not a metropolitan improvement so much as a necessary consequence of the erection of the Courts of Law on this site. So also, an opening from Holborn to Lincoln's-inn Fields, if not such an absolute necessity, is still a necessity; for the building, if it is on the north side of the Strand, ought to intercept the northern traffic, and bring it by way of the open roads of Lincoln's-inn Fields to its northern side, without allowing any of it to find its way unnecessarily into the Strand. On the diminished site no space could be sacrificed for a road from the Strand northward, and any such improvement must be made in connection with the streets which lead from the south-west of Lincoln's-inn Fields towards the Strand—such as Houghton-street and Newcastle-street. The plan put out by the Incorporated Law Society is entirely misleading. It shows a site, coloured yellow, which measures 500 feet by 465 feet (contents, 5 acres, 1 rood, 433 yards), and a 60-feet road, going from the north side of St. Clement Danes Church to the narrowest part of Carey-street. Such a scheme is absurd on the face of it, and if the Carey-street site is used, it must be in its integrity (such as that is), and without any such destruction of its usefulness as such a bisection of its area would involve. And again, if such a street is to be made, it cannot stop short at Carey-street, but must be carried on to Lincoln's-inn Fields, and thence again, by an opening, into Holborn. This latter opening, however, and any improvement of the thoroughfare on the north side of Holborn, would be metropolitan improvements, and not, it appears to me, fairly chargeable to the Courts of Justice building.

Unfortunately, I have discovered that this map is worse than misleading; it is extremely incorrect. The object of the map is obtained by altering the eastern boundaries of the ground already purchased, and bringing them considerably nearer to Chancery-lane than they really are. And in order to do this, the whole block of houses from the Law Institution on the north to those which front the Strand on the south, is drawn of much smaller dimensions than it ought to be, *e.g.*, from the eastern side of Chancery-lane to the western face of the Law Institution the Law Society's plan gives 135 feet. In reality, it is 180 feet. So again, the distance from the south-east angle of Chancery-lane to the south-east angle of the purchased site is shown 105 feet, whereas, in reality, it measures on the Ordnance Map 145 feet. Again, the clear dimension from east to west between the houses in Bell-yard and the houses in Clement's Inn is shown 630 feet, out of which two 60-feet roads being taken, would leave an area 510 feet in length for building on. In reality, the exact length on the Ordnance Map between the two points is only 560 feet, which, if the proposed roads are deducted, leaves a building area of not more than 440 feet. Anyone may see that this alteration has been really made on this map by comparing it with my plan of the building on this site, or with the Parliamentary Map of

August 1st 1845, from which it professes to be, but is not, accurately copied. It will be seen that whilst the south-east angle of my building only projects about 10 feet to the east of Temple Bar, the yellow (or building) site on the Law Society's map projects 50 feet east of Temple Bar. The result of this examination of the actual dimensions of the ground is, that allowing the same depth from north to south that I have shown on my plan, viz., 470 feet, and allowing for the two roads east and west of the building, the site coloured yellow on the Law Society's plan, and described as containing six acres, would, in truth, only contain 4 acres, 2 roods, and 1175 yards. As I have felt obliged to show the inaccuracy of this plan in regard to this site, it may not be out of place to say here that it is similarly inaccurate as regards the Embankment site; and that, curiously enough, the inaccuracy in this case makes the distance from the north side of Howard-street to the line of Somerset House Terrace about 40 feet less than it ought to be, and so diminishes the apparent value and size of this site, in the same way that it increases those of the other site.

Carey Street Plan.

Approaches, &c.

The surroundings of the building on this site were all of them provided for amply in the plan approved by the Commission, but every portion of them, except on the Strand site, depended upon the power to make additional purchases of land. If these purchases are not made under compulsory powers, I do not see how a public building can properly be placed on this site. The surroundings are, to a large extent, not merely poor, but of a very bad kind indeed. In Bell-yard the frontage is very irregular, and many of the houses appear to need rebuilding; but they are so shallow, having another court or alley behind them, that it would hardly be worth while to rebuild them, unless the whole block from Chancery-lane to Bell-yard could be purchased at one time. Higher up in Bell-yard is the Law Institution, which is now in course of being added to and raised a storey in height. Its front is not parallel with the New Courts, and I regret that the Law Society have not seen their way to making alterations in their building of such a kind as would make it harmonise with the New Law Courts, if they are built opposite to it. On the north side of Carey-street, east of Serle-street, the houses are not quite so irregular as they are in Bell-yard. They consist of shabby, low buildings at the back of the houses in New-square. It seems that these houses are each of them divided among so many different owners, that it would be next to impossible to purchase them with any view to their improvement except by the compulsory powers of an Act of Parliament, and it may be assumed, therefore, in the absence of such powers, that these houses would remain very much in their present condition, facing the new buildings. The case is very much the same as regards the houses west of Serle-street. Here a large number has been bought by a Company with a view to rebuilding the whole block as offices, but many of the houses have not been, and cannot, I believe, be bought by any private company, and so, here again, the houses will, I presume, of necessity, remain in somewhat the same condition as at present.

On the north-west side, the buildings remaining formed one side of Yeates'-court. They are poor, squalid houses, and ought undoubtedly to be purchased and rebuilt, or removed. On the south-west the property all belongs to Clement's Inn, and there is an agreeable opening to the gardens of that Inn and New Inn. Probably if the Courts were built here, the authorities of Clement's Inn would build chambers facing the new building, and so give no reason for complaint on this side. But on the other sides I feel bound to say, that unless in the exercise of a wise economy, Parliament would authorise the purchase of most of the property I have described, with a view, not necessarily to building on it, but to its resale, under strict conditions, as to rebuilding, it would not be wise to erect a public building on such a site; for I am quite certain that, owing to its inferior character, if the building were placed here, it would, after all, have to be purchased when it would have much increased in value, and after the arrangement of the building had been interfered with to its detriment on account of it.

The Judges' approach to this building would be from the north-west, *viâ* Portugal-street or Serle-street. They could then drive to a door very nearly at the level of their own floor. The barristers from the Temple and Lincoln's Inn could not have the bridges originally proposed for their use, inasmuch as I have had to lower the floor of the central hall, and with it the floors of the Courts and other rooms. They would, however, all enter the bar rooms in Bell-yard. This

CAREY-STREET PLAN.

entrance would be rather more convenient, of course, to Lincoln's Inn than to the Temple.

(B.) Light and air and quiet.

(B) IN RESPECT of light, air, and quiet, this site would not be so good as that on the Embankment. The Strand is so noisy as not only to affect all rooms looking towards it, but to make it impossible to allow of large openings in the south front for architectural effect or entrances. Carey-street and Bell-yard, also, will not be so quiet as I should wish to make them. In my former plan, approved by the Commission, I had not allowed Bell-yard to be a through thoroughfare for carriages, and heavy traffic in Carey-street would have been, to some extent, diverted by means of the bridge which it was proposed to make to New-square, Lincoln's Inn. In the absence of these precautions both these streets might be noisy. If it could be done without interfering with the rights of the old houses on the east side of Bell-yard, I should still wish to put a bar across to stop traffic through it, but I doubt whether this could be done. The rest of the site looking towards Clement's Inn and Yeates'-court will be perfectly good as regards quiet, but it may be doubted how far the air coming from the poor neighbourhood of Clare-market and King's College Hospital will be good unless some steps are taken to effect a clearance round the site.

(C.) Arrangement of building to suit site.

(C) THE INSTRUCTIONS I have received require me to provide as good an arrangement of plan, in regard to levels, light, &c., as that which I have provided on the Embankment site. This requirement would have involved a complete alteration of some portions of my plan, even if the reduced and irregular shape of the site had not made it absolutely necessary. It will be seen, by referring to my block plan, that in order to get length of ground for the group of Courts, central hall, and rooms attached, it is necessary to move them all up to the northwards to that part of the site which possesses sufficient length to receive them. And in any case if the shape of the site had admitted of the Courts, &c., occupying the centre, as they did in my approved plan, there would have been a great objection to their doing so, on account of the reduced width of the site, which would have made it necessary to reduce the internal areas so much in width as very much to interfere with the amount of light throughout. And I thought, also, that if on the Embankment site I provided an open quadrangle for the offices, I was bound to show how a nearly equally good arrangement might be provided on this site. My plan also provides the same increased width from north to south of the block containing the Courts which I have provided on the Embankment plan, and, consequently, for the improved lighting and arrangement of many of the witness and jury rooms, &c. The entrances to the central hall and Courts will be at the east end in Bell-yard, and at the west end under a raised courtyard. The floor of the hall will be raised very little above the natural level of the ground, so that there will be as few steps as possible up to the Courts from the Strand side. The bar-room will be at the east end of the hall. The Judges will be able to drive to their entrance at the west end, which will be as convenient in point of height as their entrance to the building on the other site. I have managed this by the construction of a raised courtyard at the end of the building, with a road rising very easily from the west angle of Carey-street. This entrance involves the necessity for the Judges to arrive from the north. If they come from the south, which they probably would not usually do, they would have to ascend about 22 feet 6 inches from the entrance to the floor of their rooms.

The irregular shape of the western portion of the site makes it very difficult to use it satisfactorily. I have shown on my block plan how it might be used so as to make the most of the land, and at the same time to admit of fairly good architectural arrangement, both for convenience and for effect. But even this arrangement brings the building into most inconvenient proximity to existing buildings.

In this plan it would be necessary to put offices above the Judges' rooms. There would be a somewhat greater area occupied by offices, but, as far as I can judge at present, there would not be much difference in the available office room between this plan and that for the Embankment, owing to the greater height of building on the latter to which it would be possible to get convenient and easy access.

(D.) Levels of ground.

(D) IF NO MORE LAND is purchased, of course no alteration of any kind can be

be made in the levels of any of the streets surrounding the building. I think the levels may, however, be managed very well, though it will be impossible here to contrive any such scheme for facilitating the rise to the upper floors, as I have suggested on the southern side of the Strand; in most other respects the levels will be equally good. It will be impossible, now that the floor of the Courts is lowered, to contrive any passage to them across the Strand, and a tunnel under it would involve the purchase of a considerable amount of property (which might of course be partly sold again) on the southern side of the Strand.

CAREY-STREET PLAN.

Levels of ground.

(E) THIS SITE PRESENTS some æsthetical advantages which it would be very wrong to ignore. The elevation above the river is considerable. The entrances to the central hall would be exactly on the same level as the court yard in front of St. Paul's Cathedral; and the floor of the central hall here would be 22 feet higher than it would be on the Embankment. To this extent, therefore, it would, in all distant views, rise higher and be better seen than on the lower site. And I think, also, that the position would be an important one, crowning the hill opposite St. Paul's, and supplying what the views of London want, some very marked architectural feature in the long expanse of buildings between St. Paul's and Westminster.

(E.) Advantages from an architectural point of view.

On the other hand, no near view could ever be obtained which would at all equal the view which would be had of a building on the Embankment site. The buildings facing the streets would all be so high as to shut in and completely conceal from sight the whole of the central hall and a great part of the towers, and it would only be at a great distance that these would ever be seen rising above the rest of the buildings. Again, it would be impossible in the Strand front to gain anything like the fine effects of light and shade which could easily be obtained on the Embankment, and which are indeed a necessity there, if the ground is to be made the most of. In previous expressions of my opinion on this subject, I have spoken strongly of the effect of a great building crowning this eminence. I had in my mind when I did so the vast extent of my plan as approved by the Courts of Justice Commission, including not only the central hall and Courts, but the great Probate Department, with its towers for the reception of wills, which, grouping with the other towers and lofty roofs of the building, would have given scope for great architectural effect. The reduction of the scale of the building, the omission of the towers for wills, and the apparent certainty that the surrounding buildings will all be mean and unworthy of their position, if no more land is purchased, seem to me to make a vast difference in the view I am compelled to take, and to deprive this site of the claims I considered it had to be very nearly on a par with the other, in regard to the opportunities it afforded for erecting a building which should be a great architectural success and an ornament to the Capital.

I have now gone through the reasons which, it appears to me, are to be given for and against the two sites, endeavouring, I hope successfully, to treat the question in the most impartial and dispassionate manner.

Conclusion.

On the whole it appears to me that the Embankment site affords by far the best opportunity for a great work, now that the reduced scale of the building is accepted by the opponents to your scheme. I have found, I am bound to confess, that the more I worked at the plan for the building on the Embankment, the more it seemed to be possible to make the work one with which men of taste might be satisfied from an architectural point of view; and I have good hopes that, if the building is in the end placed on this site, it would be possible, in the way I have indicated, to make it so really convenient to all those whose business lies in it, as to involve no very serious sacrifice, if any, of the present use or associations of the great Inns of Court or other centres of legal business.

I have, &c.

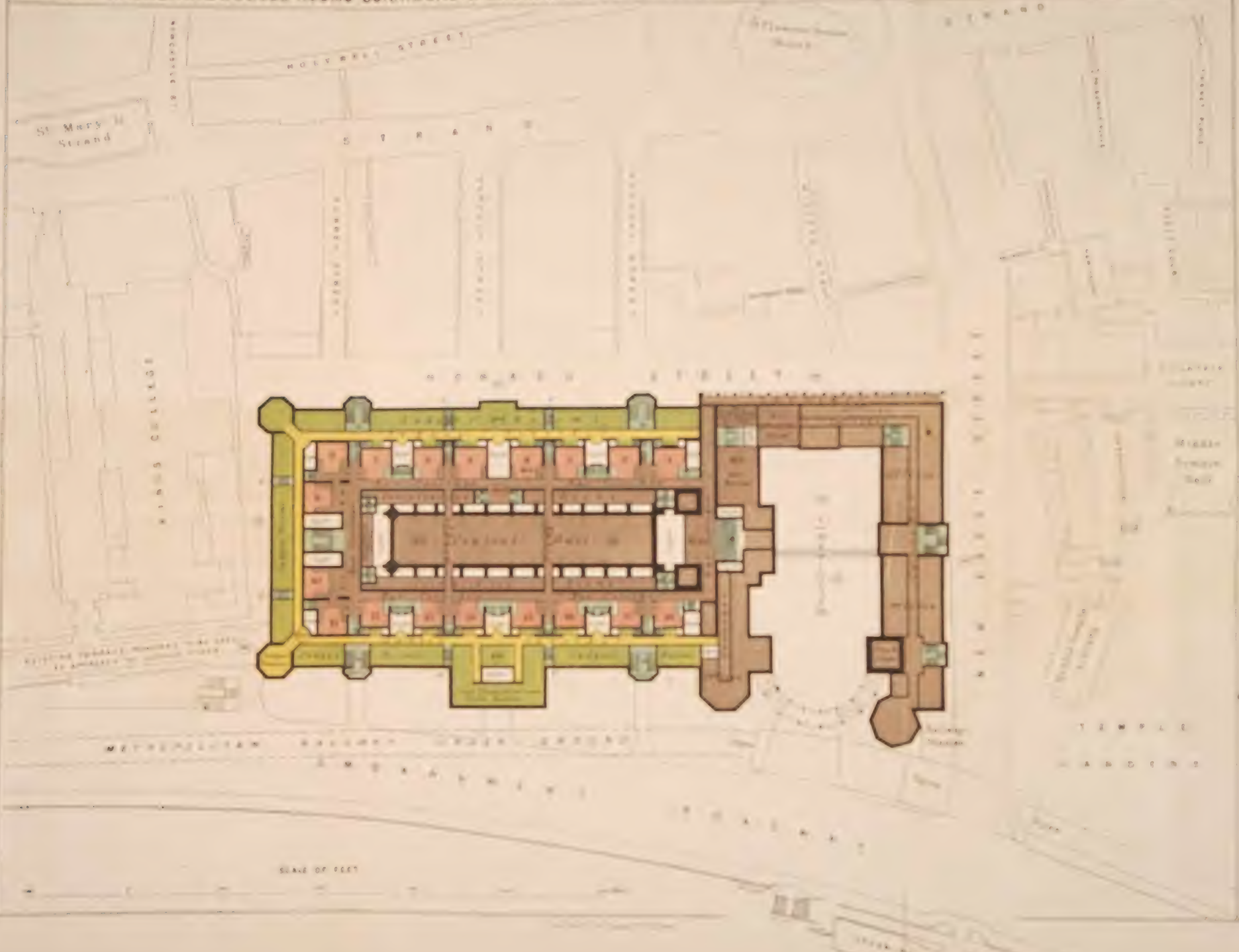
(signed) *George Edmund Street.*

NEW COURTS OF JUSTICE

ON THE PROPOSED SITE BETWEEN HOWARD STREET AND THE THAMES EMBANKMENT.

COURTS OF JUSTICE ON PROPOSED SITE BETWEEN HOWARD STREET AND THE THAMES EMBANKMENT.

BLOCK PLAN SHEWING JUDGES ROOMS CORRIDORS & ENTRANCE, AND BAR ROOMS & CORRIDORS IN CONNECTION WITH THE COURTS.



Reference to Tints

Judges Rooms	Green
Judges Corridors and Entrances	Yellow
Bar Corridors and Rooms	Purple
Courts	Pink
Staircases	Blue

The figures written on plans thus 33 shew the heights of floors above the datum line, which is 14 ft below the level of the Embankment and 9 ft 6 in below the central Entrance in Howard Street. The floor of the Central Hall is 4 ft 6 in above Howard Street and 21 ft 6 in above Embankment Road.

Reference to Courts

1
2 [illegible]
3
4
5 Common Pleas
6
7
8 Exchequer
9
10 Probate and Divorce
11 Admiralty
12 Queens Bench
13 Vice Chancellor
14 Lord Chancellor
15 Lords Justices
16 Rolls Chancellor
17 Vice Chancellor
18 Master of the Rolls

A A A Staircases to Offices and Corridors round Judges Rooms

B B B B Corridors leading to Courts at the back of Judges Rooms

C C C Staircases for use of Officers and others going to Judges rooms

[illegible] Howard Street & the Strand Thames Street connecting the Courts

COURTS OF JUSTICE ON PROPOSED SITE BETWEEN HOWARD ST. AND THE THAMES EMBANKMENT.

BLOCK PLAN SHEWING THE ROOMS, CORRIDORS AND ENTRANCES FOR PUBLIC BUSINESS, ATTORNEYS, JURY, WITNESSES & PARTIES TO CAUSES

REFERENCE TO TINTS

Rooms for Attorneys, Solicitors

Clerks, Consultations &c.

Jury Rooms & Corridors

Witnesses Rooms, Lunch

Retiring Rooms, Central Hall

Entrances to Courts and Offices

Staircases

The Entrance written on the Drawing as for Judges & Queen's Counsel is only for the Judges, the Queen's Counsel & the Profession generally & the Public Entrance is in Howard Street.

The Door & the Central Hall is for Judges, Queen's Counsel & the Profession Exclusively.

S T R A N D

St Mary le Strand Church

HOWARD STREET

Central Hall

R I V E R T H A M E S

Scale of Feet

NOTE

COURTS OF JUSTICE ON THE SITE ALREADY CLEARED, ON THE NORTH SIDE OF THE STRAND, WITHOUT PURCHASE OF ANY ADDITIONAL LAND.

BLOCK PLAN SHEWING JUDGES' ROOMS, CORRIDORS AND ENTRANCE AND BAR ROOMS AND CORRIDORS IN CONNECTION WITH THE COURTS.

REFERENCE TO TINTS.

- Judges' Rooms — Green
- Judges' Corridors and Entrances — Yellow
- Bar Consultation and Rooms — Brown
- Courts — Pink
- Staircases — Blue

The figures written on plans thus [illegible] show the heights of floors above the datum line, which is the same as on the other plan.

The boundary of the site is indicated by a Red Line thus

This indicates the whole of the land already purchased on the premises of the New Building.

The floors of Courts will be 6 feet above Carey Street and 12 ft above the Strand.
The Central Hall is 7 ft. between Carey Street and 8 ft. above the Strand.

New Square
Lincoln's Inn
Carey Street
Chancery Lane
Lincoln's Inn Fields
Royal College Hospital
Lincoln's Inn Chapel
Lincoln's Inn Garden
Lincoln's Inn New Square
Lincoln's Inn Hall
Lincoln's Inn Library
Lincoln's Inn Gardens
Sardinia Street
Portsmouth Street
Clare Street
Clare Market
Sewer for Garden
Shore
Law Buildings at back of Bankers
Garden
Union Bank
CAREY STREET
Judges' Rooms
Bar
Judges' Rooms
Central Hall
Judges' Rooms
Bar
Judges' Rooms
Judges' Rooms
Quadrangle
Offices
Offices
Offices
Offices
Queen's Robing Room
Lower Court Registrars
Law Reporters' Offices
Lower Court Registrars
Lower Court Registrars
Lower Court Registrars

COURTS OF JUSTICE ON THE SITE ALREADY CLEARED ON THE NORTH SIDE OF THE STRAND WITHOUT PURCHASE OF ANY ADDITIONAL LAND

BLOCK PLAN SHEWING THE ROOMS, CORRIDORS AND ENTRANCES FOR PUBLIC BUSINESS, ATTORNEYS, JURY, WITNESSES & PARTIES TO CAUSES.

COPY of Plans for the New Law Courts on the Embankment Site, with a Letter from the Architect.

(*Mr. Layard.*)

Ordered, by The House of Commons, *to be Printed,*
3 *June* 1869.

[*Price* 5*s.* 6*d.*]

0.77.

Under 8 *oz.*

NEW COURTS OF JUSTICE.

RETURN to an Order of the Honourable The House of Commons, dated 8 July 1869;—*for*,

COPY "of CORRESPONDENCE with the TWO ARCHITECTS recommended by the JUDGES of DESIGNS for the NEW COURTS of JUSTICE, from the Date of the Report of the Judges to the present time, with the exception of that already given in Parliamentary Paper, No. 339, of Session 1867-8."

Treasury Chambers,
9 July 1869.

ACTON S. AYRTON.

Mr. *E. M. Barry* to the Right Hon. the Earl of *Derby*.

My Lord, 21, Abingdon-street, 20 January 1868.

THE Secretary of the Courts of Justice Commission has sent me some printed correspondence between that body and the Treasury, which appears to show that the selection of an architect for the new Courts of Justice is still under the consideration of their Lordships.

As my name has been brought prominently forward in connection with this question, and as the long delay that has occurred is likely if further prolonged to cause me serious professional injury, I trust I may be excused if I recall to your Lordship's recollection the points of the agreement made with the competitors in respect of the selection of an architect for the great public work.

I. *As regards the Employment of the Successful Competitor.*—In the first letter of invitation to myself, and Messrs. Hardwick, Scott, Street, Waterhouse, and Wyatt, there occurred the following passage:—"In the event of none of their designs being adopted by the Judges, they will be quite unfettered as to the selection of an architect, and 800 *l.* will be paid to each competitor." Messrs. Scott, Wyatt, Waterhouse, and myself at once objected, by letter dated 3rd March 1866, to this clause, and pointed out the necessity of a promise to employ the successful competitor. This was conceded; and in the next revise of the conditions, dated a few days after our letter of the 3rd March 1866, the clause stood thus: "800 *l.* will be paid to each architect, except the successful competitor, who is to be employed as architect of the building." This clause was afterwards approved by the Lord Chancellor, and forms part of the final conditions issued to the architects. By it a distinct agreement is made with them that the competition shall be final, and that the successful competitor shall be employed; and this agreement is confirmed by many other passages in the conditions.

Instruction to competing architects, par. 56, p. 13.

II. *As regards the Mode of deciding on the Successful Competitor.*—This part of the question was placed in the hands of five Judges of Designs:—The Right Hon. W. E. Gladstone, the Right Hon. W. Cowper, the Right Hon. Sir A. Cockburn, the Right Hon. Sir R. Palmer, and W. Stirling, Esq. To these Judges there were subsequently added, by the request of the competitors, two gentlemen of high professional attainments, who already possessed the confidence of the Commission:—Messrs. J. Shaw and G. Pownall. In the printed correspondence, a copy of which was sent to the competitors, thus forming part of the agreement with them, there occurs this passage in a letter from the First Commissioner of Works:—"Mr. Cowper to the Secretary of the Commission. The Commission will not be the Judges, and will have no voice in the selection

Minutes of Commission, p. 31. Ditto, p. 49.

of the architect." The Treasury Minute, dated 23rd December 1865, decides "that the notice or invitations to compete be issued by the Committee of Judges, and that their award should be final."

It will be seen from these extracts, as well as from the tenor of the whole of the conditions, that the competitors were distinctly promised that the selection of the architect was to be made by the Judges of Designs, and by *no one else*, and that their award was to be final.

Minutes of Commission, p. 232.

III. *As to the further Question of who is the Successful Competitor.*—I can only refer to the report of the Judges of Designs, in which they state "that the design of Mr. Barry is the best in regard to plan, and that of Mr. Street in regard to elevation." I wish to avoid any reference to the special claims of either of these designs, and will only say that if the Treasury decide to carry out the recommendation of the Judges to employ Mr. Street and myself as joint architects, our intimate acquaintance, and (I think I may add) mutual respect and esteem, will be a guarantee for our working harmoniously together, and using our best endeavours to render the new Courts of Justice worthy of the nation.

I am, &c.
(signed) *Edward M. Barry.*

Mr. *George Edmund Street* to the Right Hon. the Earl of *Derby*.

COURTS OF JUSTICE COMMISSION COMPETITION.

My Lord, 51, Russell-square, W.C., 20 January 1868.

I BEG that I may be allowed, as one of the architects invited to make designs for the new Courts of Law, to address a few observations to your Lordship in reference to the very lengthened suspense as to taking action upon the award made by the Judges of Design.

I gather, from the minutes of the Courts of Justice Commission, that on the 30th of July 1867, after six months' deliberation, the Judges of Design made an award which recommended the employment of Mr. E. M. Barry and myself as joint architects to the building. Four months later they repeated their decision, which was then sent to the Commission, who agreed, on 13th December 1867, that we might be asked to undertake the work, suggesting only that the opinion of the Attorney General should be taken "whether the decision of the Judges should be recognised."

It is now more than a year since the plans for this great work were sent in, and nearly half a year since the Judges' award was made; and though I cannot doubt the eventual acceptance of their award, I feel that I ought not any longer to delay saying to your Lordship that the present uncertainty is not only a great hardship to me personally, but also at the same time, in some degree, a hindrance to the proper execution of the work, if it is finally entrusted to me. For, first, very many persons, assuming that I am to be one of the architects, refuse, naturally enough, to put smaller works into my hands, supposing that my time is already almost exclusively occupied on this great work; and, secondly, I am myself at present unwilling to refuse much work, which, if this question were settled in my favour, I should undoubtedly refuse, in order to be able to devote sufficient time to the most important architectural work of the day. For, though the architects were not at all bound by the conditions of competition to refuse any fresh work, it is certain that in any case they would at once be obliged, and ought, to refuse a good deal.

In common with the other nine competitors, I entered upon this competition, as I thought, with a most distinct understanding that the award of the Judges of Design was to be final. This opinion was founded on the Treasury Minute of 23 December 1865, "That the notice or invitations to compete be issued by the Committee of Judges, and that *their award should be final.*" This minute was communicated to me by the Commission.

It

It was also most distinctly understood and agreed that *some award was to be made*; for the original invitation to compete (dated 27th February 1866) expressly contemplated the possibility of "none of the designs being adopted;" and this being at once (3rd March) objected to by most of the architects invited, the terms *were altered* to those which have since the publication of the second revise of the instructions to the competing architects (7th March 1866) always been put forward by the Commission, and accepted by the architects, in these words: "A payment of 800*l.* to be paid to each competitor, except the successful one, who is to be employed as the architect of the building."

We were also expressly informed that the Commission were not to be Judges. The First Commissioner of Works wrote to the Secretary of the Commission on 29th November 1867, in these words: "It is true that the Commission will not be the Judges, and will have no voice in the selection of the architect." And this statement of the First Commissioner has always been supported by the Treasury, with the one exception of the permission given to the two Judges nominated by the Commission (the Chief Justice and Sir Roundell Palmer) to ask the assistance of the Commission, if they wished it, *before making the final award*, so far as it would better enable them "to form a judgment of the comparative merits of the internal arrangements of each plan." (Treasury Minute, 26th January 1866.)

I do not suppose that the award of the Judges being made in favour of two architects can be less an award than it would have been if it had been made in favour of one only. It is true that the instructions did not expressly indicate the possibility of such an award, but at the same time they nowhere prohibited it, either really or by inference; and indeed the minutes of the Commission, at page 73, speak of negotiations having "passed between the architects and the Treasury as to the terms on which the successful competitors should be engaged."

And, as regards the advantage, or the contrary, of the employment of two architects on such a work, it may not be improper to observe, that, impressed probably by the enormous extent of the work to be done, the Commission originally proposed to obtain, first of all, floor plans from one architect, and afterwards to obtain architectural elevations by competition from another; that the same course of employing two architects is that which has lately been proposed by the "Times;" and that among the competitors for this work two at any rate were in partnership with other architects, and in the event of the selection of either of them, there would, in fact, have been the same employment of two men.

The opinion which I hold as to the finality of the award is shared by other of the competitors. Mr. G. Gilbert Scott, who at our meetings was elected chairman of the competitors, has informed me that he sent about a month ago to the Secretary of the Commission a protest against any departure from the award of the Judges of Design, or any further reference to the Commission, and no doubt the Secretary of the Commission has communicated to the Treasury a copy of this letter; and a similar protest from Mr. J. P. Seddon is printed at page 233 of the Minutes of the Commission. For myself, whilst I cannot doubt that your Lordship will feel that the Treasury is bound to accept and act on the award of the Judges of Design, I venture to assure you that the long delay in doing so is very prejudicial to me in many ways.

I will only add, in conclusion, that I have always been on the best terms with Mr. E. M. Barry, and that neither of us see any difficulty about working together harmoniously in the execution of the respective portions of the work which the award of the Judges of Design assigns to us.

I have, &c.
(signed) *George Edmund Street.*

Mr. *Edward M. Barry* to *G. Ward Hunt*, Esq., M.P.

Sir, 21, Abingdon-street, 26 February 1868.

In accordance with an invitation from the Secretary of the Courts of Justice Commission, conveyed to me by direction of the Lords of Her Majesty's Treasury, I have to-day seen and perused the case to be submitted to the Attorney General respecting the award of the Judges in the late competition of designs for the New Courts of Justice.

There are statements made in the case which (I am sure through inadvertence) are calculated to convey to the Attorney General a view of the facts of the case which is in opinion not only inaccurate but also specially injurious to me. I trust, therefore, that I may be allowed to call the attention of their Lordships to these statements.

It is asserted that the award of the Judges was made before the report of the independent surveyor on the cost of the building was submitted to them. This statement is not correct, as regards the award now under consideration, whatever may have been the case with the first award. The attention of the Judges was specially directed by the Treasury to the Surveyor's report, and they were invited to re-consider their first award with that information before them. They did re-consider it, and though they recommended the selection of the same architects as before, their second award so arrived at must be taken as having superseded the first, and being now the award of the Judges.

I respectfully submit therefore, that it is not correct to inform the Attorney General that the award of the Judges was made without consideration of the report of the surveyor.

It is further stated in the case that Mr. Barry and Mr. Street insist on their joint employment, under the terms of the award; and it is suggested that some other single competitor may have better claims than either of us. This statement is altogether erroneous, as far as I am concerned, for I have never insisted on my employment jointly with Mr. Street. My view of the agreement made with the competitors is explained in my letter to the Earl of Derby, dated 20th January 1868, and acknowledged by you. I am willing, as I stated therein, to work with Mr. Street, if the Government consider that course the best for the public service, but I cannot, in justice to myself, limit my claims to our joint employment. The conditions of competition in their whole tenor and spirit prescribe that as the building is to be one of strict utility as a place of business, general convenience of plan and internal distribution (which includes good arrangements for light, air, quiet, &c.) are to be the chief, if not the only things, to be considered. The Judges of Designs have ascribed to my design the pre-eminence on these vital points. The words of the printed conditions (p. 11) are as follows:

"The *chief points* to be kept constantly in view, and to be treated as superseding, so far as they may conflict, all considerations of architectural effect, are the accommodations to be provided and the arrangements to be adopted so as in the greatest degree to facilitate the despatch and the accurate transaction of the law business of the country; and in carrying out this design *the first object* should be to provide ample uninterrupted communication and accommodation for those who have legitimate business in the new building."

The Judges of Designs have avowedly selected my plan as the best as regards what are above declared to be the *chief points* and the *first object* of the competition. The two professional Judges, Messrs. Shaw and Pownall, have recorded in detail their preference of it in respect of the same considerations. If, therefore, it be suggested to the Attorney General that possibly some other single competitor may have greater claims than myself, I feel that his attention ought to be directed to the fact that the conditions prescribe throughout that convenience of plan and general distribution are to be the primary considerations, and that the Judges have distinctly recorded their judgment in my favour on these very points.

With this view I would further suggest, that the report of Messrs. Shaw and Pownal hould be laid before him as a portion of the report of the Judges.

As

As the case now stands, it has a tendency however unintentional, to prejudice my claims, and I have to appeal to their Lordships to take such steps in the matter as they may consider fair and reasonable.

I am, &c.
(signed) *Edward M. Barry.*

Mr. *Edward M. Barry* to *G. Sclater-Booth*, Esq., M.P.

Sir, 21, Abingdon-street, 29 June 1868.

I HAVE just seen the Parliamentary Papers presented to the House of Commons in reply to the motion of Mr. Bentinck on the subject of the New Law Courts.

Mr. Street's memorandum calls for no remark from me, except that I feel bound to point out that he relies entirely upon the reports of departments, committees, and others who were *not the judges*, but only the professional advisers of the Judges; while I rest my claims on the reports of *the Judges themselves*, whose decision the competitors were informed would be treated as "*final*" by Her Majesty's Government, and on the faith of which promise I, in common with the other competitors, agreed to enter the competition.

I take this opportunity of calling your attention to the, no doubt, accidental omission from the return of several letters respecting the award of the Judges which have an important bearing on the facts of the case.

I allude particularly to a letter from me to the Right Honourable the Earl of Derby, then First Lord of the Treasury, dated 20th January 1868, a letter from me to the Right Hon. G. W. Hunt, then Secretary of the Treasury, dated 26th February 1868, and some letters from Mr. Street, written about the same time.

I am, &c.
(signed) *Edward M. Barry.*

Mr. *Edward M. Barry* to *G. Sclater-Booth*, Esq., M.P.

Sir, 11, Abingdon-street, 21 July 1868.

I HAVE received Mr. Hamilton's letter of the 3rd instant, in which he acknowledges the receipt of my letter of the 29th ultimo, but does not inform me of the reason for the omission from the printed correspondence of letters from Mr. Street and myself, to which I attach considerable importance.

Considering the position allotted to me by the recommendation of the Judges of designs, and considering that the Government has thought proper, after allowing my name to remain before the public for more than a year, to disregard that recommendation in my favour, I had expected that they would have thought it right to furnish me with some explanation, in reply to my letter of the 8th ultimo, in which I pointed out that the course proposed to be adopted involved, in my opinion, a breach of the public faith. I presume, however, that as my letter consists of statements extracted from official documents, no reply to it, beyond an admission of its accuracy, was considered possible.

I am the more inclined to adopt this supposition, because, although, since my letter was written, the subject has been discussed in both Houses of Parliament, no attempt has been made by the official representatives of the Government to dispute the correctness of my statements, while in the House of Lords public and emphatic testimony to their accuracy has been borne by Lord Cranworth, who signed the conditions as Lord Chancellor, under whose auspices they were issued, thus signed, to the competitors, and whose authority respecting them cannot therefore be disputed. His Lordship stated, "It was due from him to Mr. Barry to say that he was perfectly right in representing that the instruc-

tions given to him were to attend almost exclusively to matters of internal accommodation, convenience, and arrangement. It was due to Mr. Barry to remind their Lordships of the prominence given to all questions of internal arrangement. *Primâ facie*, it would certainly seem that Mr. Street should be the architect of the National Gallery, and that Mr. Barry ought to construct the Courts of Law."

The conditions provide (1) that the architect who shall acquit himself the best shall be appointed. They point out (2) that, in deciding who is the best, utility is to be preferred to effect, and good internal arrangements shall be considered paramount, "superseding, so far as they may conflict, all considerations of architectural effect;" and they further provide (3) that the decision on these points of the Judges appointed by the Government shall be "*final.*"

With reference to any claims of other competitors, and the remark to my prejudice contained in Mr. Street's recent memorandum, I think it right to repeat emphatically that such claims and remarks are based entirely on departmental reports by committees and others who were *not the Judges*, but only some of their professional advisers, and that I rest my claims on the decision arrived at by the *Judges themselves*, with the opinions of all their advisers before them, that "*Mr. Barry's design is the best in regard to plan and the distribution of the interior.*" This decision we were promised should be final, and it is not necessary for me to defend it. I may however quote, as illustrating it, the separate report of Messrs. Shaw and Pownall, assigning to me, according to the enclosed abstract, a preference under 41 *heads against* three in favour of Mr. Street, and including in the former every one of those points which the competitors were told were of vital importance, such as "light, air, quiet, accesses, staircases, general arrangement, &c." This report in no way supersedes, though it serves to explain, the decision of the Judges, by showing in detail the views entertained by the two professional Judges who may be supposed to have especial qualifications for speaking authoritatively on such questions, and who, in point of fact, were added to the Judges first appointed at the unanimous request of the competitors, by reason of the confidence reposed by the latter in such qualifications.

Few non-professional persons can have a just idea of the amount of time, labour, and anxious study I have found it necessary to bestow on this work, so as to provide conveniently and satisfactorily for the vast extent of accommodation required, the printed details of which extend over 83 foolscap pages, and include 66 schedules, with 24 courts and more than 1,000 rooms. On this point I may quote from a letter which has been recently published by Mr. G. G. Scott, R. A., in which he says: "What that labour was I may describe from my own experience as almost continuous study for three-quarters of a year, involving absence for fully half my time from ordinary business, and the almost entire absorption of my thoughts from other subjects."

He adds, "of this time and study five-sixths were devoted, in my case, to the arrangement of the plans;" notwithstanding which he is "aware of some important faults in his arrangement," as judged by the instructions, and "that Mr. Barry was rather specially strong on points where he was considered deficient."

It would be impossible to have testimony of a stronger character or from a higher authority of the absorbing nature of the work, or of the difficulty and importance of the plan and arrangement in respect of which the Judges have pronounced my design to be the best. Mr. Street's opinion on the same point is shown by the following passage in the "Explanation which he sent in with his design. And first of all, I must be allowed to say that no doubt the accurate and proper planning of such a building is of the most vital importance. I have assumed, from the first to last, that the schedules prepared with so much care for the competing architects were meant to be *strictly* adhered to."

I did not hesitate to incur the anxious labour of this competition, to the detriment of my private engagements, because I relied implicitly on Her Majesty's Government to carry out strictly and equitably the promises which they had made in order to obtain my designs, and because I felt sure that they would recognise the moral claims as well as the legal rights of the competitors. It did not occur to me as possible that the Government could allow

me

me so to devote myself, and after having received from me all that I had to give (viz., my designs), and being thus in possession of all the advantages of the contract between us, would declare that they do not on their part consider themselves bound to keep their engagement on the faith of which my designs were furnished, but hold themselves free to disregard the decision of the Judges, which they promised should be final, and to make any appointment they may think proper, as if the conditions had never been written and issued under the auspices of a Royal Commission, with the signature of the Lord Chancellor (Lord Cranworth) formally attached to them.

As regards any reason for such a declaration founded on the recommendation of the Judges being less binding on a formal award, I respectfully submit that as the competitors have faithfully performed their part of the contract, and no fault is imputed to them, and as, by furnishing their designs, they have trusted everything to the Government, the latter cannot fairly be freed from their obligations towards the competitors by the alleged imperfect discharge of their duty by certain agents of their own on whose appointment and over whose actions the competitors have possessed no power of control.

The Judges, by deciding that my internal arrangements were the best, made an award substantially in my favour, according to the conditions laid down; but I was willing from deference to them, and friendship towards Mr. Street, to waive my claims for precedence over him, and to consent to a joint appointment.

I have no wish to deprive Mr. Street of the position for which the Judges recommended him, but I must always consider that I am entitled by their decision, and by the conditions, to the first place in the competition, and therefore to the appointment of architect, if it be decided to appoint one of us alone.

The course which has been taken is not only highly injurious and unfair to me, but is calculated to have a most prejudicial effect on the public interest, for it is difficult to see how, in the event of future competitions, it will be possible for architects again to repose confidence in the just and equitable adherence of the Government to the conditions prescribed by themselves and agreed to by the competitors as a contract between the two parties. However clearly they may be told hereafter that internal arrangements, and the convenience and comfort of those for whom the building is intended, are to be of paramount importance, that light, air, quiet, &c., are to be the first desiderata, "superseding all other considerations," architects for the future will have reason to think that such instructions are not to be taken literally, but that they are neither desired nor expected to comply with them, still less to devote, as Mr. Scott has done, five-sixths of his valuable time and study to the consideration of such matters. The experience of the present case will teach them an easier and shorter road to success, notwithstanding the minute and detailed instructions of the Commission, who, to quote from a leading article in the "Times," 18th July 1867, "rightly laid down the principle that no grandeur of outward effect can make up for a defective interior, and no interior can be otherwise than defective which is ill-lighted or ill-ventilated."

I had hoped that the Government would have hesitated to pursue a course which has turned my success in the competition into a serious misfortune, or at least would have furnished me with some satisfactory explanation of the reasons which have induced them to inflict upon me so great an injury.

As I have been disappointed in this expectation, it now becomes my duty, on public and private grounds, to protest formally against my exclusion from the work, as being at variance with the letter and spirit of the conditions of the competition, and the decision of the judges, and as leaving undischarged the obligations which the Government have incurred towards me by such conditions and decisions, on the faith of the strict and honourable performance of which obligations they have obtained from me my professional services, and now possess my designs.

I am, &c.
(signed) *Edward M. Barry.*

NEW LAW COURTS.

TABULAR ABSTRACT of the REPORT of the Professional Judges of the Designs (Messrs. *Shaw* and *Pownall*), showing the Points of Excellence awarded by them to each Competitor.

	Barry.	Scott.	Lockwood.	Waterhouse.	Burges.	Brandon.	Seddon.	*Street.*	Deane.	Garling.	Abraham.
Light and Air	1	–	–	–	–	–	–	–	–	–	–
Quiet	1	–	–	–	–	–	–	–	–	–	–
Tramways	–	–	–	–	–	–	–	1	–	–	–
Floor level of Courts	–	–	–	–	–	–	1	–	–	–	–
Relative position of Departments	1	–	–	–	–	–	–	–	–	–	–
Accesses and Staircases to Offices	1	–	–	–	–	–	–	–	–	–	–
Communication between different sets of Offices	1	–	–	–	–	–	–	–	–	–	–
Intercommunication	1	–	–	–	–	–	–	–	–	–	–
Separation of Traffic	1	–	–	–	–	–	–	–	–	–	–
Private road, Clement's Inn, Bell Yard, and Strand	1	–	–	–	–	–	–	–	–	–	–
Public Hall	–	–	1	–	–	–	–	–	–	–	–
Extra Courts and Offices	–	–	–	–	–	–	1	–	–	–	–
Spare rooms	1	–	–	–	–	–	–	–	–	–	–
Water closets and urinals	1	–	–	–	–	–	–	–	–	–	–
Refreshment department	–	–	–	–	1	–	–	–	–	–	–
Area of Site	–	–	–	–	–	–	–	1	–	–	–
Extent of excavation	–	1	–	–	–	–	–	–	–	–	–
Position of registry	–	–	–	–	1	–	–	–	–		–
Law and equity courts, 24 in number, with rooms connected therewith	17	3	1	–	*1	1	–	–	1	–	*1
Judges' and Vice Chancellors' Chambers, 7 in number	3	2	1	–	–	1	–	–	–	–	–
Other suites of Offices for the various departments, 39 in number	11	14 *5	5 *1	1 *5	2	1 *1	1 *1	*1	*1	*1	–
Total	41	25	9	6	5	4	4	3	2	1	1

N.B.—Figures marked with asterisk (*) denote cases in which the competitors are reported equal in merit with others.

Particulars in which the arrangements are not in accordance with the conditions:											
Deficiency in the Area of Courts	–	–	–	1	–	–	–	1	–	–	–
Excess in Area of Site	–	–	–	–	–	–	1	–	–	–	–
TOTAL	–	–	–	–	–	–	1	1	–	–	–

Mr. *Edward M. Barry* to the Secretary of the Treasury.

Sir, 21, Abingdon-street, 21 December 1868.

HAVING just seen for the first time a copy of the report of the Probate Department upon my plan for the New Courts of Justice, which report was referred to in Mr. Street's memorandum, and particularly alluded to by the late First Commissioner of Her Majesty's Works, &c., in the House of Commons, I feel it due to myself to offer some observations thereon.

I have already explained, in my letter of 29th June 1868, that by the terms of the competition, (1) the best design was not to be selected by departments, but by the Judges of Designs, whose decision was to be *final*; (2) that the judges were to consider internal convenience as superseding external effect; and (3) that the Judges have declared my design the best according tot he rules laid down. The competitors were told from the first that the decision of the judges would be *final*. Mr. Scott, writing after their report, not only withdrew all objection to their award, inasmuch as, to quote his own words, "we all entered the competition subject to their judgment on the relative merits of our designs," but expressed "his earnest desire" that the report should be fully carried out; very generously adding, that in his opinion "there is room for two architects on this great work," and that "the talents of the two architects concerned are such as would, among the members of my profession, give confidence in the result."

It cannot be expected that any architect of so great and complicated a work could satisfy all departments in the first instance, and without free and unreserved intercourse with those for whose use the building is designd.

It

It was therefore to be expected that the selected architect would in any case have seen reason to modify some portions of his design before carrying it into execution. It is understood that Mr. Street has had to modify every portion of his plan, and is preparing a new design, at an estimated cost of more than a million and a half, which is not yet matured, and has not been seen by the public.

If I had been permitted a much more restricted liberty of modification than has been accorded to Mr. Street, I have no doubt that I should have been equally able to re-arrange the accommodation of the Probate Department as to obviate all reasonable objections. My plan was not only pronounced the best by the Judges of Designs collectively, but the two professional judges have recorded their approbation of it under 41 distinct heads against 3 only in favour of Mr. Street.

Having therefore received the award of the judges in my favour, the finality of which was a condition inherent in the competition, I cannot but protest against any departmental report being imported into the discussion, and I should not have thought it necessary to notice it had not this been done by the Government.

I regret that Her Majesty's Government should have taken a course in this matter which has inflicted upon me serious injury, without favouring me with any replies to my letters on the subject. It would appear to be important that any engagements publicly entered into by the Government with private persons, in order to obtain their professional services, should be carried out according to their moral as well as their legal obligation, and should not be such as to justify the remarks made by the President of the Royal Institute of British Architects in his inaugural address on 2nd November 1868, in which he referred to the "very unsatisfactory condition of the Courts of Justice Competition," and stated, with reference to it, "the feeling of the profession that in such competitions, if a strict adherence is not paid to the conditions put forth, it is hardly to be expected that men of character and ability will join in them."

A well-known professional paper, the "Builder," has also declared the course taken to be "a shameful injustice, which if persisted in will have a fatal effect on future competitions."

As I have not received any replies to my letters on this subject from the late Government, I have been compelled to infer their views from the statements of Ministers in Parliament. By these it would appear to be admitted:—

(1.) That the Government made a contract with the competing architects by which the latter undertook to furnish designs, and the former undertook to employ one of the architects selected according to rules duly specified.

(2.) That these rules provided, (*a*) that the architect should be chosen by certain Judges and by *no one else*; (*b*) that the decision of such Judges should be "*final*;" and (*c*) that the principle of selection should be that "utility should be preferred to effect," and that the internal arrangements should be considered as "*superseding*," *so far as they may conflict, all consideration of architectural effect.*

(3.) That the competitors have discharged their obligations under the contract by furnishing their designs, and that Her Majesty's Government have not discharged their obligations above recited.

(4.) That the Government justified the retention by them of all the advantages of the contract, and their omission to carry out the promises referred to, by reference to an opinion given to them by the late Attorney General on a case drawn up and submitted to him by the Solicitor of the Treasury.

It is not, of course, for me to question the Attorney General's authority on a legal point; but when I, with others, agreed to furnish our designs, we expected that the Government would carry out their promises according to their simple and natural meaning as understood by us. It has therefore caused painful surprise to find that, while admitting that we have discharged our duty, the Government have declared themselves free from their corresponding obligations, on a narrow legal view of an informality, more apparent than real, *on their own side of the question.*

By furnishing my designs I trusted everything to the Government, and if from this circumstance it results, as is understood to be the opinion of the late Attorney General, that no action at law can be sustained against the Government, I appeal confidently to their sense of justice whether my confidence ought to be turned to my disadvantage.

I have now respectfully to inquire whether Her Majesty's Government consider the opinion of the Attorney General binding on the competitors and themselves under the clause of the conditions of competition providing for a reference to the Attorney General in certain cases, or whether they regard it as the mere opinion of the legal adviser of the Government on a case submitted to him *ex parte*; and as this opinion has been referred to as justifying the treatment of which I complain, without its having been communicated to me, I have also to request that I may be furnished with a copy of the questions addressed to the Attorney General, and of his replies thereto.

I may point out that, as soon as I had an opportunity of seeing the case (by the invitation of the Secretary of the Courts of Justice Commission), I protested against its inaccuracy, and I have reason to know that Mr. Street adopted a similar course, and expressed a strong opinion that any departure from the recommendation of the Judges would be most unjust, and a breach of faith with the competitors. I have, however, looked in vain for these and some other letters in the printed correspondence.

I am, &c.
(signed) *Edward M. Barry.*

NEW COURTS OF JUSTICE.

COPY of CORRESPONDENCE with the TWO ARCHITECTS recommended by the JUDGES OF DESIGNS for the NEW COURTS OF JUSTICE, from the Date of the Report of the Judges to the present time, with the exception of that already given in Parliamentary Paper, No. 339, of Session 1867-8.

(*Mr. Hennikер-Major.*)

Ordered, by THE HOUSE OF COMMONS, *to be Printed,*
12 *July* 1869.

317.

Under 1 *oz.*

NEW LAW COURTS.

RETURN to an Order of the Honourable The House of Commons, dated 21 June 1869;—*for*,

COPY "of the REPORT of the COMMITTEE appointed by the COURTS of JUSTICE COMMISSION 'to Examine all the PLANS submitted to the Commission, with a view to ascertain the Dimensions and Measurements.'"

(*Mr. Layard.*)

Ordered, by The House of Commons, *to be Printed*,
21 *June* 1869.

NEW LAW COURTS.

1.—REPORT of the COMMITTEE appointed by the COURTS of JUSTICE COMMISSION "to examine all the PLANS submitted to the Commission, with a view to ascertain the Dimensions and Measurements."

REPORT.

(1.) WE have examined the Plans submitted to the Commission at their last meeting, with a view to ascertain the dimensions and measurements; and in doing so we have had the valuable assistance of Mr. Street and Mr. Burnet, between whom, as might be expected, no material difference has arisen with respect to such dimensions and measurements.

(2.) These Plans were as follow:—

1. Mr. Street's Howard-street Plan;
2. Mr. Street's Reduced Plan for Carey-street, as published by the Office of Works in May 1869;
3. Plan founded upon the scheme approved by the Commission, but reduced and adapted by Mr. Burnet to the Carey-street Site without the purchase of further land;
4. Map of the two sites and surrounding streets prepared under the direction of the Incorporated Law Society.

(3.) The three first Plans may, we think, so far as regards dimensions and measurements, be conveniently considered together and in connexion with the comparative statement relating thereto prepared by Mr. Burnet, and also submitted to the Commission at their last meeting.

(4.) The figures in this Statement have been in some particulars corrected, and some changes in the arrangement have been made for the purpose of facilitating a fair comparison between the three Plans to which it relates; and the measurements and dimensions as now stated have been agreed between Mr. Street and Mr. Burnet, and, as so agreed, adopted by us. A copy of the Statement as amended, marked A, accompanies this, our Report.

(5.) We have not thought it within our province, having regard to the terms of the resolution by which we were appointed, to express any opinion as to the comparative merits of the several plans before us, and we wish it therefore to be understood that we have not considered, and are therefore not responsible for any of the statements in Paper A, except such as relate to measurements and dimensions.

(6.) As to No. 4, viz., the Law Society's Map:

This map is, in the main, a reproduction of a map laid by the late Sir Charles Barry before a Select Committee of the House of Commons appointed in 1845 "to consider the expediency of erecting a building in the neighbourhood of "the Inns of Court for the Courts of Law and Equity in lieu of the present "Courts adjoining Westminster Hall, with a view to the more speedy, con-"venient, and effectual administration of justice," and which is alluded to in the Report of the Committee, and ordered by the House to be printed in August 1845.

(7.) That

(7.) That original map (1845) did not, of course, represent the boundaries of the now purchased site in Carey-street, or of the proposed site in Howard-street; and such sites appear to have been inaccurately delineated on the new or reproduced map; for instance, although every one agrees, and it is so stated on the map itself, that the purchased site in Carey-street contains $7\frac{1}{2}$ acres, the dimensions of the site, as delineated on the map when measured by the scale upon it, do not produce that result; the map therefore cannot be relied upon as an accurate representation of the shape and dimensions of the proposed sites; it appears, however, to us to represent, with general accuracy, by the black blocks upon it, the buildings used by the legal profession, although we have not thought it worth while to enter into minute inquiries for the purpose of testing its accuracy in this respect.

R. Paul Amphlett, Chairman.
Geo. Hume.
W. H. Walton.
John Young.

Mr. H. A. Hunt approved of the foregoing Report, subject to the following addition and alteration, but in which the other members of the Committee do not concur, viz.:—

Par. (6.) After the word "reproduction" add "and not a copy as it purports to be."

Par. (7.) Instead of the last clause, substitute "Nor does it, as it appears to "me, represent, with proper accuracy, by the black blocks upon it, the buildings "used by the legal profession, as I have caused an investigation to be made by "a competent person, and it has been ascertained that about one-fifth of the "buildings thus indicated are not so used. The Map of the Incorporated Law "Society is therefore, in my opinion, neither a copy of the Map of 1845, nor "an accurate representation of the buildings now used by the legal profession."

11 June 1869. *H. A. H.*

2.—ORIGINAL STATEMENT submitted by Mr. *Burnet*, Architectural Clerk to the Courts of Justice Commission, at the Meeting of the Commission on the 4th of June 1869.

NEW LAW COURTS.

COMPARISON made by Mr. *Burnet*, the Architectural Clerk to the Commission, between Mr. *Street's* Scheme of May 1869, for the Howard-street Site, his Reduced Scheme for Carey-street Site, and the Scheme Approved by the Commission Reduced to the Carey-street Site.

	Mr. Street's Howard-street Scheme.			Mr. Street's Reduced Scheme for Carey-street Site, as just Published by the Office of Works.			Scheme Approved by Commission Reduced to the Carey-street Site.		
	A. R. P.			A. R. P.			A. R. P.		
Comparison of—	8 1 10			7 2 21			6 3 19		
AREA OF SITES	Including new approaches, but not including proposed new street through the Carey-street Site.			Including everything that is required.			Including all that is required.		
As proposed by each Scheme.		A.	R.	P.		A.	R.	P.		A.	R.	P.
To be apportioned between—												
1st. BUILDINGS - - -	Land now covered with houses - - - - - -	3	3	21	Main Building - { Land already purchased and cleared }	5	1	27	Land already purchased and cleared - - - - -	5	1	16
	Land reclaimed under the Embankment Act - -	1	1	2	Western Extensions { Land already purchased and cleared }	0	2	32				
and		5	0	23		6	0	19				
2nd. APPROACHES - - -	Enclosed spaces and entrance roadways on river front, being Land reclaimed under Embankment Act -	1	1	22	Given up to Carey-street, Bell-yard, and Strand - { Ditto -	0	3	8	Given up to new street at west end of Site, and for widening Carey-street and for Bell-yard, all being land already purchased and cleared - - -	1	2	3
	Widening and extending Howard-street, widening Strand-lane and forming New Essex-street, including in the latter case that part of existing Essex-street which will form a portion of New Essex-street, amounting to 1 R. 5 P. - - - - - - -	1	3	5	Given for light, air, &c., on the western side of Site - { Ditto -	0	2	34				
		8	1	10		7	2	21		6	3	19
Comparison of—												
ADDITIONAL LANDS - - -	For a new Street through the Carey-street Site, in continuation of New Essex-street - - - - -	0	2	28								
Proposed by Mr. Street's Plans (May 1869) to be acquired.		8	3	38								
Ditto - - - - - - - - -	To enable the formation of New Essex-street, and the widening and extension of Howard-street - -											
	To enable the formation of proposed Tunnel under and Bridge over Strand - - - - - - -	1	2	0	- - - - Nil - - - -				- - - Nil.			
	To form entrance to Temple (*a*), as proposed, say -											
	TOTAL AREAS to be Purchased - - -	10	1	38	All already purchased - - - -				All already purchased.			
SURPLUS LAND - - -	Say - - - - - - - - - - - -	1	2	0	- - - - Nil - - - -				- - - Nil.			

Comparison of—

OFFICE ACCOMMODATION (*b*.)

	Sup. ft.
Note.—The original Parliamentary Scheme of 1865, proposed to provide for the Legal Offices and Departments exclusive of Probate, Admiralty, and Bankruptcy - - -	171,821
Add,—	
For walls, stairs, corridors, lavatories, &c., say one-half - -	85,000
TOTAL AREA of Office accommodation in Parliamentary Scheme - - - -	256,821

	Sup. ft.
Total space provided for Offices on one floor, inclusive of accommodation for the Bar - - - - - -	40,094
	4
Four floors of similar size will give - - - -	160,376
Add,—	
A fifth floor on the lower half of the Great Quadrangle - - - - - - - - - -	20,047
TOTAL AREA provided - - -	180,423

	Sup. ft.
Total space provided for Offices on one floor, inclusive of Bar rooms, and of space occupied by Court No. 1, and its attendant rooms, confining the Buildings, however, within the same limits as the Commissioners' scheme reduced - - -	55,679
Five floors of similar size will give - - - - - -	5
TOTAL AREA (*c*) - -	278,395

	Sup. ft.
Total space for Office on one floor, inclusive of Bar rooms - - - - -	61,400
	4
Four floors of similar size will give - - - -	245,600
Add,—	
Fifth floor on Strand side, as on approved scheme	23,706
Fifth floor on the Carey-street side, as on approved scheme - -	14,882
TOTAL AREA -	284,188

Comparison of—

ARRANGEMENT.

Quadrangular principle originally proposed by Commission, and worked out in Mr. Street's approved scheme, viz., Courts in central block, Offices in outer surrounding buildings.	Quadrangular principle admitted in Mr. Street's (May) Report to be the best, but not adopted in this plan.	Quadrangular principle discarded - -	Quadrangular principle retained.

Comparison of—

CONVENIENCE OF THE SEVERAL SCHEMES.

	Yds.	*Yds.*	*Yds.*
Distances which the profession would have to traverse from Lincoln's Inn and the Temple to the Courts in Howard-street, and in Carey-street respectively, assuming Vice Chancellor Stuart's Court at the central point of Lincoln's Inn and Pump-court as the central point of the two Temples.			
From Vice Chancellor Stuart's Court, Old-square, Lincoln's Inn, to centre of Bar Corridor on Equity side of the Court block, passing down proposed new street through Carey-street Site - - - - -	780	330	300
From centre of Pump-court, Temple, to centre of the Corridor on Common Law Side - - - - -	350	350	317
CENTRAL HALL - - -	Appears to be placed so that it would in all probability be used as a public thoroughfare, from the Strand at St. Mary's Church to the Steamboat Pier, and to the proposed Railway Station at the South Entrance to the Great Quadrangle.	Arranged so that it should not be used as a thoroughfare.	Arranged so that it should not be used as a thoroughfare.

(*a*) As the plans afford no information as to the extent of the purchases which will be necessary for these objects, the above rough estimate has been formed of what would probably be the smallest area required.

(*b*) Any floor space that might be provided for Offices in the Court block is omitted in these measurements, because it may be added equally in each case.

(*c*) Some portions of the buildings for Offices in this Plan are 70 feet in width, which I presume would give rooms on either side of the Corridor which must be 27 feet deep. Would this be a convenient dimension?

3.—COPY of the STATEMENT submitted by Mr. *Burnet*, as amended and corrected by the Committee appointed by the Courts of Justice Commission.

APPENDIX A.

NEW COURTS OF JUSTICE.

COMPARISON between Mr. *Street's* Plan of 1869 for the Howard-street Site, his Reduced Plan for Carey-street Site, and the Scheme approved by the Commission Reduced and Adapted to the Carey-street Site, without Purchase of further Land.

	Mr. Street's Howard-street Plan.			Mr. Street's reduced Plan for Carey-street, as Published by the Office of Works in May 1869.			Plan founded upon the Scheme approved by the Commission, and reduced and adapted by the Architectural Clerk to the Carey-street Site, without Purchase of further Land.		
Comparison of—	A. R. P.			A. R. P.			A. R. P.		
AREA OF SITES	6 3 26			7 2 21			6 3 19		
As proposed by each Plan.	Including new approaches, but not including proposed new street through the Carey-street Site.			Including all that is required.			Including all that is required.		
To be apportioned between—		A.	R.	P.		A.	R.	P.		A.	R.	P.
1st. BUILDINGS	Land now covered with houses	3	3	26	Main Building — Land already purchased and cleared	5	1	27	Land already purchased and cleared	5	1	16
and	Land reclaimed under the Embankment Act (including part of a roadway proposed by the Embankment Act of 1862 to be formed, amounting to 3 R. 17 P.)	1	1	7	Western Extension — Land already purchased and cleared	0	2	32				
		5	0	33								
2nd. APPROACHES	Widening and extending Howard-street, widening Strand-lane, and forming New Essex-street from east end of Howard-street southwards to the Embankment, but not including any part of the existing Essex-street, nor that part of the New Essex-street which is formed on the reclaimed land	0	3	33	Given up to Carey-street, Bell Yard, and Strand — Ditto	0	3	8	Given up to new street at west end of Site, and for widening Carey-street and Bell-yard, all being land already purchased and cleared	1	2	3
	Part of New Essex-street, formed on the land reclaimed under Embankment Act	0	0	37	Given for light, air, &c., on western side of Site — Ditto	0	2	34				
	Forming New Essex-street from east end of Howard-street to the Strand	0	1	13								
	Approach from Embankment to Great Quadrangle	0	0	14								
	Railway Station	0	0	16								
		6	3	26		7	2	21		6	3	19
Comparison of—												
ADDITIONAL LANDS Proposed by Mr. Street's Plans (May 1869) to be acquired.	Enclosed spaces on river front, being land reclaimed under Embankment Act (*a*)	1	0	32	Nil.				Nil.			
Ditto	To enable the formation of New Essex-street south of Howard-street, and the widening and extension of Howard-street	0	3	28								
	To enable the formation of New Essex-street north of Howard-street (*b*)	0	1	20								
SURPLUS LAND	Say	1	1	8	Nil.				Nil.	0	3	2

Comparison of— OFFICE ACCOMMODATION. Mr. Street's approved Plan of 1868 proposed to provide for the Legal Offices and Departments (excluding Courts and the rooms attached to them), exclusive of Probate, Admiralty Bankruptcy, Land Registry, Middlesex Registry, Offices for Royal Commissions, and Bar Rooms, and Strong Room Accommodation, 284,000 superficial feet (*c*)	Total space provided for offices in Office Block (*d*) — *Sup. feet.* 189,000 Total space provided in Court Block — 96,000 285,000	Practically the same as in the Howard-street Scheme.	Total space provided for offices in Office Block (*e*) — *Sup. feet.* 266,000
Comparison of— ARRANGEMENT. Separation of offices from Courts, worked out in Mr. Street's approved Plan, viz., Courts in centre block, offices in outer surrounding buildings	Stated in Mr. Street's (May) Report to be the best, but not adopted in this Plan, owing to the shape of the ground; but the offices are distinct from the Courts surrounding a quadrangle.	Same remark applies	Principle retained.
Comparison of— CONVENIENCE OF THE SEVERAL PLANS. Distances which the profession would have to traverse from Lincoln's Inn and the Temples to the Courts in Howard-street and in Carey-street respectively, assuming Vice Chancellor Stuart's Court as the central point of Lincoln's Inn, and Pump Court as the central point of the two Temples	From Vice-Chancellor Stuart's Court, Old Square, Lincoln's Inn, to centre of Bar Corridor on Equity Side of the Court Block, passing down proposed New Street through Carey-street Site — *Yds.* 780 From centre of Pump Court, Temple, to centre of Bar Corridor on Common Law Side — 350 From centre of one Site to centre of the other — 375	*Yds.* 330 350	*Yds.* 300 317
CENTRAL HALL	Is placed so that it might be used as a public thoroughfare from the Strand at St Mary's Church to the Steamboat Pier, and to the proposed Railway Station at the south entrance to the Great Quadrangle.	Arranged in precisely the same way as the other, as regards entrances to Central Hall, as required by instructions.	Arrangement originally proposed by Mr. Street and approved by Commission retained so that it would not be used as a thoroughfare.

(*a*) This is the part coloured Green on Mr. Street's Plan in front of his building next the Embankment, and is not less than the area provided by the Embankment Act of 1862 to be left for ornamental ground.
(*b*) As the Plans afford no information as to the extent of the purchases which will be necessary for these objects, the above rough estimate has been formed of what would probably be the *smallest* area required.
(*c*) The original Parliamentary Scheme of 1865 proposed to provide for the Legal Offices and Departments, exclusive of Probate, Admiralty and Bankruptcy, 256,821 superficial feet.
(*d*) Throughout half these buildings there is a fifth floor in height.
(*e*) Any floor-space that might be provided for offices in the Court Block is omitted in this measurement. Throughout half the Office Block there is a fifth floor in height.

NEW LAW COURTS.

COPY of the Report of the Committee appointed by the Courts of Justice Commission "to Examine all the Plans submitted to the Commission, with a view to ascertain the Dimensions and Measurements."

(*Mr. Layard.*)

Ordered, by The House of Commons, *to be Printed*,
21 *June* 1869.

274.

Under 1 *oz.*

NEW LAW COURTS (SITES).

RETURN to an Order of the Honourable The House of Commons, dated 21 June 1869;—*for*,

COPY "of the REPORT from the Surveyor of Her Majesty's Works and Public Buildings to the First Commissioner on the SITES proposed for the COURTS and OFFICES of LAW."

To the Right Honourable *Austen Henry Layard*, M.P., First Commissioner of Works and Public Buildings.

Sir,

THE recent proceedings of the Courts of Justice Commission, and the statements which have been circulated with reference to the proposed site on the Thames Embankment appear to me to render it necessary that I should submit some observations to you relating to the estimates, and upon some other points upon which the ultimate decision as to the site for the new building may mainly depend.

Mr. Pownall's estimate of the cost of the Embankment site.

And, first, let me allude to Mr. Pownall's estimates, as set forth in his recent Report to the President of the Incorporated Law Society. That gentleman represents the cost of the property required to carry out Mr. Street's design for building the new Courts of Law on the Thames Embankment site as 812,415 *l.* In this estimate Mr. Pownall has, no doubt, included the cost of the property necessary for widening Essex-street from the north side of Howard-street to the Strand, because such widening is shown on Mr. Street's plan. In my minute, submitted to you on the 24th February 1869, I stated the cost of acquiring all the property south of Howard-street at 600,000 *l.* I had not at that time made an estimate for widening the upper end of Essex-street, and the cost of this public improvement was, therefore, not included in the 600,000 *l.* However desirable it may be to widen the upper end of Essex-street, the cost of it should not be considered in comparing the two sites, unless the cost of widening the approaches to Carey-street are taken into consideration at the same time, upon which point I shall have more to say hereafter. Now, as the widening of Essex-street, north of Howard-street, would cost 150,000 *l.*, it follows that, in comparing Mr. Pownall's estimate with mine, that sum must be deducted from his figures, which would then stand at 662,000 *l.*, or 10 per cent. above my valuation. This is not a great difference, and the result will prove whether Mr. Pownall's estimate or mine is most to be relied upon. I may, however, be permitted to state, that my estimates for the acquisition of property for public purposes have hitherto not been found to be inaccurate, and upon that point I have the testimony of Mr. Pownall himself, who, in a letter addressed to Mr. Cowper on the 22nd of May last, a copy of which I had his authority to submit to you, proves that my estimate for the Carey-street site, the accuracy of which has recently been questioned in the House of Commons, was correct.

Appendix (A).

Continuation of Essex-street, north of the Strand.

Mr. Pownall also states in his report, that the estimate he has given is exlcusive of the cost of continuing Essex-street to the north of the Strand, and without some explanation this statement may be misunderstood. What I take it to mean is, that he has not included the cost of the site of a roadway, proposed to be made through the site already acquired, between Carey-street and the Strand; and very properly so, for that improvement belongs to an entirely different branch of the subject, and has nothing whatever to do with the cost of the Embankment site.

Disposal of the Carey-street site.

If it shall be determined to place the Courts of Justice upon the Embankment site, the Carey-street site must, in that case, be disposed of, and I observe that Mr. Pownall considers that 364,320 *l.* is the utmost sum that could be obtained by the sale of it. You are aware that I have been in communication, by your authority, with persons of great respectability and experience, who propose, in case Parliament should determine upon the Embankment site for the Courts and Offices of Law, to lay out the Carey Street site in ranges of chambers for barristers, solicitors, law students, and other professions and trades connected with the administration of the law. Seeing the great existing demand for accommodation of this description, and the peculiar convenience of the Carey-street site for this object, surrounded as it would be by the Courts and Offices of Law and the Inns of Court, these gentlemen are of opinion that it could not be laid out in any manner more to the public advantage, or with more prospect of repaying the original purchase-money. These negotiations have been conducted on the basis of paying to the Government a rent equivalent to 3 per cent. on the purchase-money, and I think that this is a fairer criterion of marketable value than the opinion of any surveyor, however eminent he may be.

Assumed claim of the Metropolitan Board of Works.

Mr. Pownall alludes to a claim which the Metropolitan Board of Works might have for that portion of the embanked land which is proposed to be taken for the intended building. Assuming this to be the case, which, however, I by no means admit, let us see what the quantity is for which payment would have to be made. Now, from paper A, attached to the report of the sub-committee appointed by the Courts of Justice Commission at their meeting on the 4th instant, you will observe that the reclaimed land proposed to be used for the purposes of this building is 1 acre, 1 rood, and 7 perches, but, of this, 3 roods and 17 perches are required for forming the roadways to the Norfolk Estate, as provided for by the Embankment Act of 1862; consequently all the embanked land that would be taken for the purposes of this building, over and above the quantity which would have been absorbed by these roadways, if they had been made, would be 1 rood and 30 perches. This, at the most, would be all that the Government would have to pay for, and this contingency has been amply provided for in my estimate.

The cost of the approaches to the two sites should be considered together.

As regards the widening of the upper end of Essex-street so as to improve the approach from the Strand, however desirable this may be as a public improvement, it would not be fair to charge it to the Embankment site without also taking into consideration, the much larger cost that would be incurred in widening the streets connected with the Carey-street site which are described at page 10 of Mr. Street's report to you of last month, to say nothing of the improvements on the north side of Lincoln's Inn Fields, which may be said to be common to both schemes. Moreover, it would be necessary, as shown on Mr. Street's plan approved by the Commissioners in October 1868, to make an access from Chancery-lane to the Courts, which would entail a further considerable expenditure. Until plans shall have been prepared showing these necessary approaches, it is not easy to form a definite estimate of the relative cost of approaches to the two sites, but I can say with confidence that the cost of making the necessary approaches to the Courts on the Carey-street site would largely exceed that of widening Essex-street.

Limitation of the expenditure in reference to the Embankment site.

By the Bill you have presented to Parliament, provision is made for limiting the expenditure upon the Embankment site, both for the land and the new buildings, to 1,600,000 *l.* No contract for the building can be made until the terms of it shall have been laid before Parliament, and the House of Commons shall be satisfied that the entire cost of the land and buildings will not exceed the sum named in the Bill.

Estimate for the building.

The probable cost of the new Courts of Justice, according to the reduced plan, has been stated by you at 1,000,000 *l.*; but, in my opinion, if proper care be taken in the preparation of the plans, and in providing only the accommodation absolutely needed, the intended building ought to be executed for 800,000 *l.* As you have determined that, whether the building be erected on the Carey-street or Embankment site, it shall be subjected to competition, and that tenders for the work shall be obtained for a lump sum before a brick is laid, Parliament will have satisfactory security that there will be no excess over the sum of 1,600,000 *l.*, which is to be assigned as the limit of the total expenditure.

diture. If I am right in my opinion that the actual cost of the building will not, under proper arrangements, exceed 800,000*l.*, there will be a margin of 200,000*l.* to cover any possible excess in the cost of the site or in other contingencies.

The cost of the building on the two sites practically the same.

The actual quantity of land which will be occupied by the building is about 5¼ acres, and I have considered that a platform of concrete, to a depth of 15 feet, will be amply sufficient for the purposes of foundation. I have thus fully provided for any extra cost of foundations on the Embankment site, but it must not be supposed that this would be without a set-off on a comparison with the Carey-street site, for you will see by Mr. Street's plan that (owing to circumstances which it is not necessary to enter into, connected with the respective levels), in order to provide equivalent accommodation on the Carey-street site, the area which would be covered with buildings exceeds that on the Embankment site, involving a *pro tanto* increase of cost. Practically, therefore, the cost of the building on the two sites may be said to be the same.

Previous estimates for the construction of public buildings.

I may be permitted to state that I have had considerable experience, extending over nearly 40 years, in estimating the cost of the construction of buildings, and during the time that I have held the office of Surveyor of Works and Public Buildings I have prepared many such estimates for the information of the First Commissioner and the Government, and I am not aware that they have been exceeded. I may refer to the recent instance of the Foreign Office, where the building has been executed for the contract sum. I may also allude to the General Post Office at Edinburgh, and to various other buildings which have been executed under the direction of your department.

Estimate for the Houses of Parliament.

I know it is the fashion to assert that the cost of all public buildings largely exceeds the estimates, and allusion is constantly made to the Houses of Parliament in support of this view. Now, what took place in regard to the estimated cost of building the Houses of Parliament was as follows: When Sir Charles Barry's design was submitted to the House of Commons in 1836, a Select Committee inquired into the probable cost of carrying it out, and I, on behalf of Sir Charles Barry, gave evidence to the effect that, in my opinion, the building could be erected for 725,000*l.* or thereabouts. That Committee, however, were not satisfied with this approximate estimate, and directed that detailed plans and specifications should be prepared, in order that an accurate measurement of the quantities might be obtained. These plans were accordingly prepared by Sir Charles Barry, and I was employed by him to make the necessary measurements from these plans, together with a valuation of the cost of the buildings. These calculations occupied altogether between five and six months. They were examined with great minuteness by the then officers of your Department, and, after an elaborate investigation, they reported that my estimate was correct, which report was presented to Parliament, and ordered to be printed on the 18th April 1837. Now, I do not hesitate to say that if the works had been submitted at that time to public competition according to those detailed plans, the whole work might have been executed within the amount of my estimate, assuming, of course, that no alterations were made in the design. Unfortunately, however, only a part of the building was executed by contract for a lump sum, the remainder being executed under a schedule of prices, by which the control of this department was effectually impaired. It is also well known that many alterations and additions were made in the design to suit the views of Dr. Reid and others. The excess in the cost of the Houses of Parliament over the original estimate is therefore due to the causes which I have described, and it was not owing to any defect in the original estimate.

Incorrect statement of the area of the Embankment site.

I will now briefly allude to the statements laid before the Courts of Justice Commission on the 4th February, and the report of the sub-committee appointed to investigate them. A paper was laid before the Commission, professing to give a comparison between Mr. Street's scheme for the Embankment site, his reduced scheme for the Carey-street site, and an entirely new scheme, approved by the Commission for the Carey-street site. Now, in that paper it was stated that the area of the Embankment site was 8 acres, 1 rood, and 10 perches, but, upon this statement being examined by the sub-committee, it was ascertained that, at the most, 6 acres, 3 roods, and 26 perches, would be required; and even in this quantity was included the area necessary for widening the north end of Essex-street, from Howard-street to the Strand, namely 1 rood and

13 perches, and also so much of the reclaimed land as was required for approaches from the Embankment to Essex-street and the Law Offices quadrangle, amounting to 1 rood 11 perches, so that the area actually required for the Embankment site is only 6 acres, 1 rood, 2 perches.

Incorrect statement of the accommodation.

Then, as regards the accomodation provided by Mr. Street on the Embankment site, which was stated to be 180,423 feet, the actual quantity, as reported by the sub-committee, is 287,000 feet, or more than 107,000 feet in excess of the statement laid before the Commission. These corrections have been made by the sub-committee in their report, but statements of this description ought not, I think, to have been laid before the Courts of Justice Commission without previous consultation with Mr Street; for, had they not happened to be impugned, they might have gone forth to Parliament and to the public on the authority of the Commission.

New Carey-street scheme not based on reliable data.

The plan "founded upon the scheme approved by the Commission and reduced and adapted by the architectural clerk of the Carey-street site, without purchase of further land," is not based on any reliable data. The correctness of it is impugned by Mr. Street, the architect of the building, whose authority in the matter must be admitted to be superior to that of Mr. Burnet, the architectural clerk to the Commission. By this plan Mr. Burnet only provides 266,000 superficial feet of accommodation as against 287,000 provided by Mr. Street, and I think it will be found that, when the requirements of light and air are properly met, there will not be three roods, two perches of land to spare, as assumed by Mr. Burnet.

Map of 1845 not correct.

A map marked in different colours, issued by the Incorporated Law Society, was put into the hands of Members of Parliament in the Lobby of the House of Commons, and was also laid before the Commission. The sub-committee has reported that this map "cannot be relied upon as an accurate representation of the shape and dimensions of the proposed sites." It professed to be "copied from plan, No. 608, ordered by the House of Commons to be printed, 1st August 1845"; but, on investigation by the sub-committee, it was found that the measurements and boundaries of the plan of August 1845 had been materially altered. Another alteration made in the plan of August 1845, before it was used in the Lobby of the House of Commons, was that spaces, which, in the original plan, had been marked as shops, were included, in the altered plan, in the deep black blocks intended to indicate buildings used by the legal profession. I have caused an investigation to be made of the actual appropriation of the black blocks of buildings on the map, and it has been ascertained that *at least* one-fifth of those blocks is occupied for purposes which have no connection with the administration of the law. In my opinion, the statements made by Mr. Street at page 10 of his report, with reference to this map, are entirely correct.

No delay will be caused by the change of site.

It has been said that a change of site would involve great delay in the carrying out of the scheme. I beg leave, however to state that, if the recommendations which I took the liberty to make in my minute of the 24th of February, 1869, are adopted, there will be no delay whatever. One year must, in any event, be occupied in the preparations of the working drawings, and of the necessary calculations upon which builders are to form their estimates; and whether the Carey-street or Embankment site be adopted, these preliminary proceedings will be the same. If the Bill for acquiring the land should be passed this Session, the whole of the property can be purchased and the site cleared before the expiration of twelve months from the passing of the Act; but if the Act should not be passed this Session, then, of course, delay would arise. I hope I have shown in my minute, a copy of which is appended, that, although the notices to owners and occupiers were not given at the time prescribed by the Standing Orders, the course I recommend, so far from being a harsh proceeding, would give honest claimants advantages which they have never yet possessed.

Appendix (B).

Light, air, and approaches of the Embankment site.

The relative advantages of the two sites, in respect to light, air, and approaches, are so accurately stated in Mr. Street's report, that it is unnecessary for me to enter inty any detail; but it may be right to say that I have carefully studied the subject, with the advantage of my long professional experience, and I can confidently state that the Embankment site has singular advantages in all these respects. There is no reflector or ventilator equal to a broad tidal river; and the road, railway, and footpath on the Embankment, and the line of steamers

steamers on the river, on the one side, and the four streets which open from the Strand to Howard-street, on the other, furnish ready-made approaches, without any additional cost beyond that involved in the widening of Essex-street, at least as good as those ordinarily obtained for new public buildings.

The great concourse of people who will resort to the Metropolitan Courts and Offices of law will obtain the same advantages of light and air, materially affecting their health and convenience, which are now enjoyed by those who frequent the Houses of Parliament and Somerset House, and by the Duke of Buccleuch and other occupants of houses on the banks of the Thames, and which will soon be enjoyed by the patients of St. Thomas's Hospital, the site of which was selected by the governors mainly with a view to these great advantages.

Limitation of expenditure on the Embankment site.

There is yet another view which I think is not unworthy of consideration. If the Howard-street site be adopted, there can be no projects for enlargement except towards the north. King's College, and Somerset House on the west, and the Temple on the east bar the way in those directions, and the only available means of spending money will be between Howard-street and the Strand. There can, therefore, be no extension except northwards, and not even in that direction until actual experience shall have demonstrated that additional accommodation for the legal business of the metropolis is needed. I know that this argument may be used against the Howard-street site on the very ground that extension on the east and west will be impossible, and that no public building ought to be so hemmed in as to preclude enlargement. But, considering the temptation to spend public money, it is a great point, I think, that there will, in this case, be no oppportunity of doing so except in one direction. According to my view, the great merit of the Howard-street modification of the Thames Embankment site (as that site was originally proposed by Sir Charles Trevelyan), is that, while it reduces within manageable limits a scale of accommodation which had latterly grown out of all proportion, it leaves space for any additional buildings which actual experience may hereafter show to be necessary.

No such limitation of expenditure possible on the Carey-street site.

There will, however, be no such limitation to expenditure on the Carey-street site, surrounded, as it is, with lofty buildings on three sides and a densely populated district eastward and westward. The shops in the Cook's-court block, the low buildings in the rear of the houses on the south side of New-square, and the block of buildings lying between King's College Hospital and Clement's Inn and the intended new building must be removed; and if thorough ventilation and pure air are considered of importance, great changes must be effected in the neighbourhood of Clare Market, and probably the houses on the south side of New-square would at no distant period be removed. This, I venture to say, is no one-sided view of the question, and a personal inspection of the site and its surroundings will abundantly prove that I have not overstated the case.

The Commission told in March 1866 that a great removal of surrounding buildings would have to be made.

I have only to add that I have always foreseen the necessity for the acquisition of additional land around the Carey-street site, and have urged this on the attention of the Commission, as may be seen from the following passage at page 93 of the Minutes, 23rd March 1866. "Mr. Hunt suggested: That whenever the Palace of Justice was erected, a great quantity of the surrounding buildings would have to be removed, in order that the business might be carried on with comfort and convenience to the judges, as well as to the suitors. Perhaps it might be necessary to remove Clare Market and other places in that vicinity." I am still of the same opinion, and this is one reason why I strongly advocate the Embankment site, where pure air and good ventilation may be had without the enormous outlay which must be made for the attainment of these advantages if the Carey-street site be adopted.

I have, &c.
(signed) *Henry A. Hunt,*
Surveyor of H. M. Works and Public Buildings.

Office of Works, 18 June 1869.

Appendix (A).

(Copy.)

To the Right Honourable *William Cowper*, M. P.

5, Westminster Chambers, Victoria Street,
Dear Sir, Westminster, 22 May 1869.

ALTHOUGH I have purposely abstained from taking any part in the animated discussions that have been going on as to the sites for the Courts of Justice, and the circumstances connected with the purchase of the Carey-street land and its results, I have, of course, taken much interest in the subject, and I am very desirous, as I was indebted to you for the appointment which placed the acquisition of this property in my hands, to state, for your information, the facts connected with the estimate, which was made by Mr. Hunt, and with the purchase of the property, for the results of which I am alone responsible, and thus to correct some very erroneous statements that have been made as to the discrepancy between the estimate and the actual cost of the property acquired for the site:—

	£.	s.	d.	£.	s.	d.
Mr. Hunt's estimate of the value of the property was - - - - -				750,000	–	–
But it did not include a House in Fleet-street which, on my recomendation, the First Commissioner purchased, and the interests in which, including trade compensation, cost - - - - - - - - - - - - -				17,000	–	–
				767,000	–	–
The actual sum given by me, or paid under the awards of juries and arbiirators, including a sum of 3,249 *l.* paid to weekly tenants, amounted to - - - - -	762,214	7	10			
And for cases where the owner could not be found, and a valuation was therefore made by a surveyor nominated by the magistrates, the sums paid into Court amounted to	3,226	5	–			
TOTAL - - - £.				765,440	12	10
Leaving balance to credit of - - - £.				1,559	7	2

Whatever other sums have been paid beyond this amount must be in the shape of law and other costs, surveyors', accountants', and witnesses' charges, and for interest on the purchase-money, which latter item from peculiar circumstances, not necessary to refer to here, no doubt considerably swelled the account. The fact, however, remains that the estimates of the value of the property being 767,000 *l.*, the sum paid for all interests have been 765,440 *l.* 12 *s.* 10 *d.*

It may be interesting to you to know also the results of the acquisition of the site for the Post Office, which you were good enough to place in my hands, and as to which Mr. Hunt also made the estimates. They are as follows:—

	£.	s.	d.	£.	s.	d.
Amount of Mr. Hunt's first estimate - - - - - - - - -				320,000	–	–
Amount of Mr. Hunt's second estimate of the cost of the additional property which the Postmaster General required to open up Bath-street - - -				25,000	–	–
Total estimates - - - - £.				345,000	–	–
Cost of the purchase of all interests in the property - -	324,692	9	6			
Sums allowed by the Postmaster General on compassionate grounds to weekly tenants - - - - - -	398	7	–			
Credit by sale of two portions of the ground to the Commissioners of Sewers for improving Newgate-street -	8,100	–	–			
				316,990	16	6
Leaving balance to credit of - - - - - - £.				28,009	3	6

I take the liberty of enclosing a copy letter which, by the direction of the Duke of Montrose was sent to me on the close of the transactions connected with the purchase of the Post Office site, and in the hope that this statement may be satisfactory to you.

I remain, &c.
(signed) *George Pownall.*

Appendix (B).

COURTS OF JUSTICE.

Embankment Site.

I have surveyed and valued the property shown by a red tint in the accompanying map, comprising all the land and buildings, bounded on the north by Howard-street, on the south by the intended roadway from the Thames Embankment, on the east by the Temple, and on the west by King's College; and I am of opinion that the cost of acquiring all interests in the property will be 600,000 *l.*

I beg leave to avail myself of this opportunity of stating, that if the Government should determine to erect the Courts of Justice on this site, delay in the prosecution of the work may be avoided by at once depositing plans and book of reference, and by serving the usual notices on the owners and occupiers, with the view, by a suspension of the Standing Orders of both Houses of Parliament, to pass a Bill this Session for the compulsory purchase of the property. This, of course, would be an unusual proceeding, and can only be justified by the exigencies of the public service, and it must be shown that no injustice will be done to the parties interested in the various properties. This may be accomplished, I think, by the introduction of clauses in the Bill for their protection. Under ordinary circumstances, plans, book of reference, and notices would be deposited and served in November and December. If a Bill is brought in, and carried through its usual stages, it would probably receive the Royal assent in July. In August, Parliament would be prorogued, and the vacation would commence; so that, as a rule, the powers of the Act would not be exercised until October or November, when, probably, the notices would be served on the various parties to send in their claims. About February, in the ensuing year, questions relating to the compensations would be considered by juries or arbitrators; and in due time, possession might be obtained of the various properties. This is the most favourable view of the course of proceeding, but it not unfrequently happens that the plans are deposited in November, and the other Standing Orders complied with, and then it is thought desirable to abandon the project; or, as sometimes happens, an Act is obtained, but all action under it is deferred for two or three years. The owners and occupiers in each of these cases are greatly perplexed and inconvenienced, and it may be that they suffer some loss in consequence. If, however, the powers of the Act are exercised, the occupiers are liable to be dispossessed of their property at a very short notice, for which they may or may not obtain ample compensation. Juries are uncertain in their action, and sometimes, under the influence of counsel, they are induced to award an insufficient compensation. As a rule, however, the promotors get seriously mulcted, because sufficient time has not been given to enable the claimant to reinstate himself in another place of business. Now, to remedy both these evils, and to give the owners and occupiers an assurance that if the Act is passed their property will really be taken, and ample time given for reinstatement, I would suggest that if a Bill should be introduced this Session for the acquisition of this particular property, clauses should be introduced binding the Government to serve the notices to treat and agree to all the parties interested within, say two months after the passing of the Act, with a proviso, that the occupiers shall nevertheless be allowed to retain possession of their respective houses until, say, June or July 1870. In the meanwhile, the Government shall, with all convenient dispatch, have the claims for compensation considered and determined, so that the parties may know precisely, before they take other premises, what amount of money they are to receive. This undoubtedly would be a great improvement upon the existing system, and therefore the suspension of the Standing Orders in this particular case would not only not be a harsh proceeding, but, on the contrary, give honest claimants advantages which they have never yet possessed. On the other hand, the Government, representing the public, will by this prompt action, save a considersble sum of money by preventing the manufacture of fictitious agreements between landlord and tenant in the interval between the deposits in November and the time of adjudication of the respective claims, and they will also save in time at least one year in the prosecution of the great work of erecting New Courts of Justice.

24 February 1869. *H. A. H.*

NEW LAW COURTS (SITES).

COPY of the Report from the Surveyor of Her Majesty's Works and Public Buildings to the First Commissioner on the Sites proposed for the Courts and Offices of Law.

(*Mr. Layard.*)

Ordered, by The House of Commons, *to be Printed,*
21 *June* 1869.

273.

Under 1 *oz.*

ELECTRIC LIGHT, &c.

RETURN to an Order of the Honourable The House of Commons, dated 7 June 1869;—*for,*

COPY "of FURTHER REPORT from the CORPORATION of TRINITY HOUSE upon the MAGNETO-ELECTRIC LIGHT, and upon the Proportion of Light through Coloured Media to be employed in the Arrangement of Mixed Lights (in continuation of Parliamentary Paper, No. 211, of Session 1867-8)."

Board of Trade, 7th June 1869. } G. SHAW LEFEVRE.

(H. 2065.)

The Secretary, Trinity House, to the Assistant Secretary, Harbour Department, Board of Trade.

Trinity House, London, E.C.,
14 May 1869.

Sir,

WITH reference to my letter of 19th March 1868, and to the reply thereto, dated 9th April in that year, I am now directed to inform you of the progress which has been made with the experiments then in contemplation upon the Magneto-Electric Light, as exhibited from different apparatus at Blackwall, and upon other subjects connected with lighthouse illumination.

The arrangements for which the Board of Trade sanctioned an outlay of 550 *l.* included the erection of an experimental lantern which had been used at Paris, erecting one magneto-electric machine, with driving gear and conducting wires worked by the wharf engine, and fitting up dioptric and catoptric apparatus now in store in the two lanterns for comparative experiments. These preliminary arrangements having been completed, and the machinery put into working order by the end of last year, it was found necessary to have a point of observation from whence the lights could be watched without exposure, and an unoccupied house was selected at Charlton, in which two rooms were temporarily fitted up for observation.

These observations were commenced on the 2nd of January of this year, and from that time to the 20th March, Committees of the Elder Brethren, with Professor Tyndall and Mr. James N. Douglass, have been constantly employed upon them, and in making such further arrangements at Blackwall as the progress of their observations has suggested, in order to render the experiments complete.

But a considerable increase in the expenditure has been thereby occasioned, for which I am now to ask a covering sanction. The further arrangements have involved the erection of the second magneto-electric machine, an extension of the shafting and the strengthening of the boiler of the wharf engine, and the addition of a governor, and sundry other items to the engine itself. Dr. Tyndall has also required a camera for the purpose of spectrum analysis.

Trials have also been made of another modification of the machine for producing the electric light, invented by Mr. Holmes, which promises to produce excellent results. It is small in compass, and contains within itself the power of duplicating the light, which is at present done by a second machine. Some difficulties have yet to be got over before it is fit for lighthouse service; at present the trials are suspended, but it is proposed to experiment further with the machine, as its adoption would lead to economy.

The results of these experiments will be seen from the accompanying copies

of reports on the subject from the Committee, from Dr. Tyndall, and from Mr. Douglass, and the Elder Brethren are of opinion that the information gained by them will be of very great practical utility.

The account herewith submitted, showing a total of 1,219 *l.* 16 *s.* 8 *d.*, is incomplete, and as some further experiments may be necessary, the Elder Brethren think it desirable, as the disbursement is in excess of the amount sanctioned, to submit the same to their Lordships so far as it is at present known, with a request for their statutory sanction.

I am, &c.

The Assistant Secretary, (signed) *Robin Allen.*
Harbour Department, Board of Trade.

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Enclosure 1.

Sir, Royal Institution, 4 January 1869.

I have been to Blackwall, and have seen the performance of the magneto-electric machine of Mr. Holmes. I have also, in company with Captain Nisbet, Captain Weller, and Mr. Douglass, observed the magneto-electric light from the opposite side of the Thames.

I beg to recommend that the following series of observations be made with the magneto-electric light:

That it be observed from a position near Charlton, known to the gentlemen above named, for three or four nights in succession from the hour of 5 or 6, to the hour of 10 o'clock.

These observations are in the first instance to decide whether the third order dioptric apparatus, or the sixth order apparatus, is most suitable for the exhibition of the magneto-electric light.

The observations for each apparatus are to continue through intervals of 10 minutes; the character of the light during these 10 minutes to be recorded.

Intermissions of the light are sure to occur, and the times of their occurrence are to be noted, in order to determine how far they are due to the passage of vessels, or how far to the imperfections of the electric lamp.

Captain Nisbet, Captain Weller, and Mr. Douglass are aware of the device adopted to distinguish the lights of the two lanterns from each other; it consists in preceding the exhibition of the sixth order light by one minute's exhibition of red light.

Then in these first experiments, it would be a very great advantage if the lights from both the lanterns at Blackwall could be seen together.

This would necessitate the placing in position of Mr. Holmes' second magneto-electric machine. I recommend this to be done. The arrangements will enable us to make a far more satisfactory comparison of the lights than when they are seen in succession. It will also enable us to determine the gain of light which results from the convergence of the two machines upon a single lamp.

I have placed in the hands of Mr. Douglass portions of carbon which I recommend for trial by Mr. Holmes in the presence of Mr. Douglass. It is desirable to diminish, if possible, the flickering of the light caused by the presence of foreign substances in the carbon.

Having decided which is the best form of dioptric apparatus for the exhibition of the magneto-electric light, it will be necessary to compare it with a dioptric light of the first order where the source of illumination is a flame of oil. To effect this comparison both lights must be seen at the same time from the position near Charlton to which I have referred.

The penetrative power of the magneto-electric light, as compared with that of the oil flame, may then be determined by means of Captain Nisbet's photometer, or some similar arrangement.

It is also desirable to compare the magneto-electric light, as regards cost, convenience, and efficiency, with the voltaic light. But this comparison may be deferred until after the observations here recommended have been made.

I have &c.
(signed) *J. Tyndall.*

Robin Allen, Esq.
&c. &c. &c.

Enclosure 2.

Sir, Royal Institution, 19 March 1869.

THE proposed construction of a dioptric revolving apparatus for the Wolf Rock, which should emit alternate flashes of red and white light, has brought forward the question of the proper proportions of the apparatus to be devoted to the respective lights.

The data here at our disposal are, I am sorry to say, exceedingly meagre. There is no way known to me of comparing with strict numerical accuracy, by means of a photometer, lights of different colours.

M. Reynaud has recorded some determinations of this character, at page 99 of his "Memoire sur l'Eclairage, &c."; but his photometric results, at all events those which refer to the change in the relative intensities of red and white light as the distance from the photometer is augmented, seem so extraordinary as to lead me to think that some unrecognised source of disturbance has come into play in his experiments. I may feel it my duty at a future day to recommend a repetition of these experiments to the Elder Brethren.

But even if such comparative experiments could be made close to the sources of illumination, they are not what we require. What is needed in the case now before us is that the white light and the red light should have, as nearly as possible, the same atmospheric range. Experiments through considerable distances of air are alone available here.

Learning from Mr. Douglass that the Rock Lighthouse near Liverpool showed red and white light, which could be seen from the Point of Air and from the Great Ormes Head, and wishing to clear my mind as far as possible of uncertainty, I proposed a visit to these places. On the 11th March accordingly we visited the Rock Lighthouse, and found there ten reflectors employed for the red light against six reflectors employed for the white light. The light was reddened by chimneys of ruby glass.

Having instructed ourselves regarding the Rock apparatus we went to the Point of Air, and observed from that place the flashes of the Rock light. Some attention was requisite to distinguish the one flash from the other, though the atmosphere was singularly transparent at the time. I quitted the Point of Air with the conviction that the red of the Rock Lighthouse was not sufficiently deep in colour.

On questioning the keeper at the Point of Air I could not ascertain that he had ever, in any state of the atmosphere, seen one of the lights to the exclusion of the other. Whenever one light was seen, the other was seen also.

On the morning of the 12th we visited the Great Ormes Head, my principal object there being to test the statement that the red beam of the Rock Lighthouse was sometimes seen there when the white light was invisible. The head keeper, a highly intelligent man to all appearance, assured us that this was not the case. He was perfectly distinct in his statement that whenever the one light was seen the other was seen also.

Various other statements made by the keepers at the Rock Lighthouse regarding the superior penetrative power of their red light did not bear the test of strict inquiry. The result of our inspection was to render it certain that the white and red beams of the Rock Lighthouse were very nearly balanced in all states of the atmosphere.

Were the ruby glass chimneys of the proper colour the experience furnished by the Rock Lighthouse would be conclusive, and we should be justified in adopting the proportions, 10 to 6 for the red and the white light.

But the colour of the ruby glass is *not* such as I could recommend; and, with a view of more thoroughly examining this question, a camera has been constructed, and lenses and prisms have been furnished by Mr. Ladd. This enables us to decompose the white beam of the magneto-electric light, and to display its constituent colours in a brilliant spectrum upon a white screen.

The red glass hitherto employed by the Trinity House shows that the red rays of the spectrum had free transmission, while the remaining rays were practically extinguished. The yellow, whose admixture would be most prejudicial, was powerfully cut away by the Trinity glass. I consider it exceedingly well chosen.

The ruby glass chimneys employed at Liverpool produced very small amount of absorption. The experiments with the spectrum confirmed the results of direct observation, by showing that this glass permits a large body of light to pass through it, which tends to destroy its distinctive character.

Having satisfied myself that the red glass of the Trinity House is at all events very nearly of the colour that I should recommend, I sought to compare the light transmitted by this glass with white light. On the 18th, I arranged a programme of observations

with Mr. Jones, in which the red and the white were to be compared in the following proportions :—

1st	Experiment	-	-	-	-	-	1	red to	1	white.
2nd	Ditto	-	-	-	-	-	2	„	1	„
3rd	Ditto	-	-	-	-	-	3	„	1	„

Mr. Jones took charge of the lamps while I crossed the river to our temporary observatory at Charlton.

The air was so charged with haze and smoke that none of the lights were visible to the naked eye. They were, however, visible in the telescope and opera glass. I found the opera glass best suited to the observations, because with it, when more than a single reflector was used, the lights blended together as if they came from a single reflector.

In the first experiment, viz., 1 to 1, begun at 6.30, the red light was not at all visible, while the white one was distinctly seen.

In the second experiment, viz., 2 to 1, the red was quite visible, but inferior to the white.

In the third experiment, viz., 3 to 1, the red appeared to have the upper hand.

I beg here to express my thanks to Mr. Jones for the extreme promptness and accuracy with which he carried out the programme agreed upon between us.

The results were afterwards checked by making the same experiments in the reverse order. In the repetition, the three red lamps did not show the same superiority as they did at first, but on looking through the telescope, two of them did not appear to be perfectly fitted. A very minute shifting would account for the difference.

The atmosphere on this occasion was favourable to the red light, for smoke is more transparent to the red than to any other colour of the spectrum. With a clear atmosphere, the single white light would have been nearly a match for the three red ones. If time permitted, I should like to make a more prolonged series of experiments on this subject. But taking everything into account, we can but commit an exceedingly slight error if we assume that the loss of light by transmission through the Trinity House glass is three-fifths of the total light. This proportion is somewhat higher than that taken by Mr. Chance in his second specification. He there assumes the loss to be $\frac{10}{21}$ parts of the whole, while I assume it to be $\frac{12}{20}$ parts. This latter proportion is what I would recommend as a basis of construction.

I have, &c.

Robin Allen, Esq. (signed) *John Tyndall.*

Supplementary Remarks.

The purities and homogeneity of the glass in the apparatus of the Great Ormes Head struck me much. It was manufactured, I am told, by Mr. Chance, and, if so, it proves what Mr. Chance can accomplish. Nothing so excellent as this glass at Great Ormes Head has fallen to my lot to examine in Birmingham for some time past.

The next experiments to be made with the new magneto-electric machine must determine its capacity to maintain itself in action for 24 hours or more, without undue heating or other deterioration. The machine is not yet ready for this test.

I have been much impressed with the necessity of having the best possible electric lamp at Blackwall. Much as I admire and respect the practical genius of Mr. Holmes, I am not satisfied with his lamp, nor should I like to see it in the hands of a light-keeper.

Of Serrin's best lamps I have had no personal experience, but I am informed that they are very perfect instruments. They are dear; but it must be remembered that the entire success of the magneto-electric light depends upon this portion of the apparatus.

(signed) *John Tyndall.*

Enclosure 3.

Blackwall Wharf Experiments.

Report of the Committee of Elder Brethren to Charlton, observing Experiments at Blackwall.

19 March 1869.

The Deputy Master, accompanied by Captains Close, Nisbet, Weller, and Lambert, with Professor Tyndall and Mr. Douglass, proceeded to the temporary observatory at Charlton, for the purpose of finally determining (if the circumstances of the weather should prove favourable) the two points which had for some time been in the course of experimental trial, and also to take the opportunity of comparing Mr. Holmes' new electro-magnetic machine against the magneto-electric machine exhibited in Paris and re-erected at Blackwall for the purposes of these experiments.

The two points to be determined were—

1st. The proportion of light through coloured media to be employed in the arrangement of mixed lights, and, more immediately, that to be adopted in the construction of the lens for the Wolf Rock Light to render its red flash equal to its white.

2nd. The

2nd. The relative merits of a large or a small lens for giving the best effect to the electric spark, illustrated by the exhibition of the electric light in a 3rd order and in a 6th order lens separately and simultaneously.

The night proved cold, but very fine, and well adapted for seeing lights; also some moisture in the atmosphere gave opportunity for observing the conditions when slight condensations were on the windows of the lanterns. The moon gave some light, it being shortly after its change, and altogether a more favourable opportunity for observation would be difficult to find. The detailed programme and plan of the series of exhibitions is recorded in the Engineer's notes and reports, and need only here be described in general terms. The comparative tests of coloured against white lights were made by means of Argand burners, with white cylinders, placed in focus in 12-inch reflectors, the colour being produced by glass shades in front of the reflectors. The colourless light was exhibited from the western, and the coloured from the eastern lantern at the wharf. For the electric light experiments, the 3rd order lens was in the western and the 6th order in the eastern lantern, the conducting wires being led from the machines to each lantern.

The Committee first visited the wharf and inspected the apparatus and machines, and the mode of working: the latter were driven by bands and shafting from the pumping engine. Before proceeding to Charlton, Dr. Tyndall exhibited to the Committee the prismatic analysis of the electric light, producing a spectrum and testing various shades of green and red glass, showing which were best adapted for our purpose, from their transmitting the colour desired to be exhibited, and absorbing the others in the greatest degree.

Captain Close remained at the wharf, and, with Mr. Jones, the superintendent, took charge of the operations; the remainder of the Committee, with Dr. Tyndall and Mr. Douglass, crossed the river and took up their post at the temporary observatory at Charlton.

The conclusions arrived at were as follows:

1st. That for coloured red light of the tint generally used by the Elder Brethren (which the analysis proved to be the best for the purpose) the proportions to bring the red lights to an equality with the white were as 11-15ths of the whole for the former, and 4-15ths for the latter. (*See* Dr. Tyndall's Reports.) Some discussion arose as to whether the proportion should not be as 12 to 4, but on consideration it was agreed that the proportions should be considered as 11 to 4. This is a little in excess of that recommended in Dr. Tyndall's previous Report, but was arrived at under more favourable conditions.

2nd. The second point to be determined was the comparative merits of a smaller and a larger apparatus for the exhibition of the electric light; a question of considerable importance in an economical point of view. It is, doubtless, in the recollection of the Board, that our valued and lamented friend and adviser, Dr. Faraday, cherished the idea that the electric light only required to be exhibited from a small lens, of "the size of a hat," as he was wont to say; and acting upon this view the arrangements for the light at Dungeness were made. When the light was previously exhibited from the South Foreland, it had been from a first order lens. From the time of its first exhibition at Dungeness, however, doubts were entertained of the soundness of this view, and from observations in which Faraday took part, it seemed that after a distance of from seven to nine miles a remarkable diminution in volume took place, and, although some adjustments were afterwards made in the 6th order lens then used, whereby an improvement was effected, the defect was not altogether remedied. Consequently, when it was agreed to send examples of the British Lighthouse system, of which the electric light was a part, to the International Exhibition at Paris, in 1867, it was resolved, after careful deliberation and consultation with Mr. Chance, to use an apparatus equal to one of the 3rd order, especially calculated and constructed for the service. The results obtained in Paris from this apparatus were very striking, although it was never developed in its utmost power from the necessity of arranging it for a plane which would give a better effect to a near than to a distant observer. No actual comparison could be made there of the relative value of the lens as against a 6th order, for, although the French authorities exhibited their electric light from the latter, it was in such a position with reference to our light that the two could not be compared. It having been impossible, therefore, to obtain the desired experience in this respect in Paris, and it being considered necessary to obtain trustworthy data on this point before going further in adopting the electric light, these comparisons were instituted at Blackwall; the Paris 3rd order apparatus being re-erected there, together with one of the 6th order apparatus used at Dungeness, brought thence for the purpose. These, as before stated, were placed in the two lanterns, the former in the western and the latter in the eastern. In each was an electric lamp, identical in make, and to each was brought the current from one of the Paris machines, or from both of them to each lamp; and also wires from Professor Holmes' new electro-magnetic machine.

The result upon the night in question fully confirmed the opinion first expressed by Mr. Chance, and also the observations made by Dr. Tyndall, by Mr. Douglass, and by members of the Light Committee during the last three months; establishing the great superiority of the 3rd order apparatus, especially as respects volume and steadiness.

After these experiments were concluded, an exhibition was given in each lens alternately, of the light from Mr. Holmes' new machine. Its peculiarity is the development of electricity from a less to a greater power. The machine possesses three adjustments,

that is to say, by the insertion of a non-conductor the strength of the light can be regulated at three degrees of intensity. As the machine, however, has not yet arrived at that position when it can be recognised as an admissible source of lighthouse illumination, the Committee do not give any opinion as to its merits, further than to say that it showed a decided superiority over the larger machine of the old construction, and had a splendid effect, and that they recommend that Mr. Holmes be encouraged to develope its powers.

Your Committee therefore recommend to the Court:—

1st. The proportion of 11 to 4 for the relative strength of the red and white lights, with the coloured media now in use, for adoption in the Wolf Rock apparatus.

2nd. The 3rd order lens for adoption at the South Foreland, in the arrangements for the electric light.

(signed) *Fred. Arrow.*
Edward P. Nisbet.
G. P. Lambert.

Enclosure 4.

Wolf Rock Lighthouse.

Sir, Trinity House, London, 6 April 1869.

I beg to acquaint you that the following experiments were made at Blackwall, and observed from Charlton, on the 24th ultimo, for the purpose of finally determining the relative proportions of red and white light of the proposed dioptric apparatus for the Wolf Rock.

In the 3rd order lantern at Blackwall, a 12-inch reflector was arranged for white light, and in the 1st order lantern an arrangement was made for showing one, two, or three 12-inch reflectors, covered with plates of glass of the standard tint for red light.

The experiments were witnessed by the Deputy Master, Captains Were, Close, Nisbet, and Lambert, Professor Tyndall, and myself, and were as follows:

P.M.										
6.55		1	Reflector		Red Light		1	Reflector		White Light.
7. 0	-	2	ditto	-	- ditto	-	1	ditto	-	- ditto.
7. 5	-	3	ditto	-	- ditto	-	1	ditto	-	- ditto.
7.10	-	2	ditto	-	- ditto	-	1	ditto	-	- ditto.
7.15	-	1	ditto	-	- ditto	-	1	ditto	-	- ditto.
7.20 to 7.25	-	3	ditto	-	- ditto	-	1	ditto	-	- ditto.

The wind was northerly, and the atmosphere rather clear, but appeared to be a little charged with smoke at Blackwall.

In comparing the relative power of the red and white lights, which were throughout the experiments found to be in excellent adjustment, two reflectors for red light were considered to be rather inferior to one for white light, but three reflectors for red light were considered to be rather superior to one for white.

The conclusion arrived at was, that the proportion of $2\frac{3}{4}$ red to 1 white, or 11 to 4, may be considered to be the proper proportion to be adopted for the Wolf Light where the red flashes must be produced by coloured plates of glass covering their portions of the apparatus.

I am, &c.

Robin Allen, Esq. (signed) *James N. Douglass.*

Enclosure 5.

Sir, Royal Institution, 20 April 1869.

Subsequent to my report, dated the 19th March, I wrote to the Deputy Master, urging the desirability of repeating the observations on the comparative powers of red and white lights from the temporary observatory at Charlton.

The lights and reflectors being duly fixed, under the superintendence of Mr. Douglass, in the experimental building of the Corporation at Blackwall, I accompanied a party of observation, which comprised the Deputy Master, to Charlton, and viewed the lights under favourable circumstances. From observations with the telescope, we assured ourselves of the proper adjustment of the reflectors; the atmosphere was also in good condition.

There was a slight diversity of judgment as to the comparative merit of the two lights; but we finally came to the conclusion that, employing red shades of the depth adopted by the Trinity House, the reddened beam of the Wolf Rock Lighthouse should, on starting, possess two and three-quarter times the intensity of the white one.

My last Report made the proportion of red to white that of 10 to 4. This Report makes it 11 to 4, and by these proportions I trust we may safely and finally abide.

I have, &c.

Robin Allen, Esq. (signed) *John Tyndall.*

Enclosure 6.

Sir, 4 May 1869.

With reference to the experiments made at Blackwall, and witnessed from Charlton by the Deputy Master, Captains Close, Nisbet, Weller, and Lambert, Mr. Douglass, and myself, we are unanimously of opinion that the electric light, as exhibited by the third order apparatus, was decidedly superior to the same light exhibited by an apparatus of the sixth order.

I have, &c.
(signed) *John Tyndall.*

Robin Allen, Esq.

Enclosure 7.

Blackwall.—Cost of Experimental Works, 1868–9.

		£.	s.	d.
Esdaile & Co.	Timber and Deals	59	10	1
Chance Bros. & Co.	Fitting up 3rd Order Lantern, and 3rd Order Electric Light	8	7	6
Ditto	Six Panes of Glass	12	11	6
Ditto	W. Kerr's Time	8	12	6
Ditto	Mr. Rigby and T. Clarke's Time	23	4	7
Hunter & English	Repairs to Fog Signal	48	16	9
Ditto	Engineer's Work	216	1	–
Warner & Sons	Plumber's Work	66	6	2
Moser & Sons	Ironmongery	1	10	–
F. H. Holmes	Material for Experiments, &c.	65	1	–
Ditto	Extra Material and Work for Experiments	125	10	–
Wilkins & Co.	Hand-rail and Valves	25	8	4
Ditto	Stove-pipe	24	16	6
India Rubber Company	Speaking Tubes	2	15	5
Tanned Leather Company	Leather Straps	7	15	5
Holgate & Co.	ditto	8	2	–
Carron Company	Gill Stove	3	8	6
Gibb & Son	Timber	13	15	8
White & Co.	Cement	9	10	–
J. James	Engine Counter	10	–	–
Wilkins & Co.	Sundries for Experiments	35	4	7
W. Ladd	Optical Apparatus	33	19	–
W. Tamsett	Fitting up House at Charlton for Observations	8	4	3
Iron-work done at Buoy Wharf		12	8	–
Superintendence of Works		95	18	–
Superintendent's Disbursements		292	19	11
	£.	1,219	16	8

Engineer's Office, 14 May 1869.

FURTHER REPORT from the CORPORATION of TRINITY HOUSE upon the MAGNETO-ELECTRIC LIGHT, and upon the Proportion of Light through Coloured Media to be employed in the Arrangement of Mixed Lights (in continuation of Parliamentary Paper, No. 211, of Session 1867-8).

(*Mr. John Bright.*)

Ordered, by The House of Commons, *to be Printed,*
7 *June* 1869.

250

Under 1 *oz.*

GUN COTTON, &c.

RETURN to an Address of the Honourable The House of Commons, dated 2 March 1869;—*for,*

"THE production of so much of any recent REPORTS on GUN COTTON, or other Explosive Substances, as may convey Information to guide the Employment of such Substances for MINING PURPOSES."

War Office, 8 March 1869.

EDWARD CARDWELL.

— I. —

APPLICATION OF GUN COTTON TO MINING AND QUARRYING OPERATIONS.

(ORDINARY GUN COTTON.)

Nature of experiment.

THE applicability of gun cotton to civil engineering being one of the points to which attention was directed in the instructions approved by the Secretary of State for War for the guidance of the Committee,* it was suggested by Mr. Sopwith, a Member of the Committee, that a series of experiments on the use of gun cotton in mines and quarries should be made on the property of Mr. Beaumont, M.P., who had been kind enough, at his instance, to offer them every facility for the purpose. The mines are known as the W. B. Lead Mines, and are situated in the neighbourhood of Allenheads, in the county of Northumberland.

This proposal being approved by the Committee, the 18th October 1864 was fixed for the commencement of the experiments; and Mr. Beaumont having, with great hospitality, offered the accommodation of his house at Allenheads to any Members of the Committee who might wish to be present, the following Members availed themselves of the invitation, and were received with the utmost cordiality by Mr. Sopwith, under whose management the whole of the mining operations on Mr. Beaumont's property are conducted:—

Members present.

Major General Hay.	Commander Liddell, R.N.
Lieut. Colonel Lovell, C.B.	Professor Stokes.
Captain Brandreth, R.N.	F. A. Abel, Esq.

Major Miller, Secretary.

Points to be observed.

Preliminary arrangements had been made by Mr. Sopwith with the view of illustrating by practical trials (so far as a few days' time would permit) the following points in connection with gun cotton as a substitute for gunpowder:—

1. The probable cost of the two materials.
2. The circumstances relating to carriage and storage.
3. The relative quantities of the two materials representing equal force.
4. The relative convenience of application in actual use in mines.

5. The

* A Committee appointed, 2nd February 1864, to inquire into the properties of gun cotton as a substitute for gunpowder with reference to the applicability of gun cotton to naval, military, and civil purposes.

5. The relative efficacy of certain defined proportions of each.

6. Any differences in the mode in which explosive force is exerted.

7. The comparative results in rocks of different composition or hardness.

8. The nature and effect of the gases evolved by gunpowder and gun cotton respectively.

9. The application of machinery as compared with hand-labour in boring holes preparatory to blasting.

10. The comparative effect as regards the separation of large masses of rock.

Arrangements. To show the comparative blasting powers of gun cotton and gunpowder, various holes had been driven in pairs, made as nearly equal in conditions as circumstances would permit, in the following kinds of rocks:—

1. In hard limestone of the most homogeneous nature met with in these strata.

2. In the vein workings of the limestone strata, where the ore is abundant.

3. In the "Flatt" workings of the limestone, where the ore is found spreading out laterally from the veins.

4. In the stratum of indurated clay, locally called "Plate," being the softest of the strata met with in the mines.

The effects of the smoke and gases being closely dependent on the artificial ventilation, or on the existence of any currents of air past the blasting holes, some of the charges were inserted at the ends or "fore-heads" of passages which were being driven through the rock, and which had no outlet at the far end. These passages, called "levels," when they serve as the principal means of communication and of draining off water, and "cross cuts," or drifts, when they are carried through intervening rock to meet the direction of veins, are six feet high, and from three and a half to four feet wide. The Blackett Level is larger, being from five to six feet wide, and more than six feet high; of this level only a small portion is completed; it is being carried on at several points along the line of its direction, and at one of the fore-heads is employed the boring machine, to which the attention of the Committee was directed.

Boring machine. This machine is a recent invention,* hardly as yet brought to perfect working order, by which the rate of boring is very much accelerated. Its importance, however, as connected with gun cotton in opposition to gunpowder, consists in the regularity with which the proper dimensions of the blasting hole are preserved throughout the entire depth.

Blasting holes. The holes bored by hand labour are intended to be circular, and to have a diameter of $1\frac{1}{4}$ inch; but they are apt to assume an irregular triangular form, in consequence of which it often happens that the gun cotton rope of $1\frac{1}{8}$ inch diameter proves too large, and if the one-inch rope is used an equally advantageous result cannot be expected. If the rope should stick part of the way down the hole, the result is still more objectionable, for in blowing it out by ignition it is apt to crack the rock and spoil the hole, even when no tamping is used. This ill fitting may occasionally be caused by the rope itself being beyond its proper dimensions, or having a wrong label fixed upon it; but no inconvenience on this head had been experienced where the machine was used.

Proceedings. The proceedings of the Committee began on Tuesday 18th, and ended on Friday 21st. The greater part of the time was spent in making experiments in the mines, but one morning was occupied in blasting operations in a limestone quarry, where the effect of each discharge could be observed at the moment of explosion; and part of the time was devoted to hearing the opinions of experienced

* By Mr. Westmacott, a partner in the Elswick Engine Works of Sir W. Armstrong & Co., where the machine was made.

rienced inspectors and practical miners on the comparative advantages of gun cotton and gunpowder. Their acquaintance with the former material dates only from the middle of July last, when it was first employed under the directions of M. Rèvy, but it has been in frequent use since that time, and though the men are probably unskilled in the manner of applying its peculiar properties to the best advantage, they have had time to form a trustworthy opinion on several points connected with its employment. Miners' experience with gun cotton.

The gun cotton is obtained from Messrs. Prentice & Co., of Stowmarket, in the form of the hollow rope recommended by Baron Von Lenk for mining purposes. It is made in various sizes, distinguished by the diameter in inches, and is generally supplied ready cut into lengths of six inches each. These lengths can be varied by again cutting them, but this should never be done except with a sharp knife, as the friction of a blunt instrument might cause ignition. Each end of every piece is prevented from unravelling by having a piece of copper wire fastened round it. A wrapper of thin brown paper, waterproofed with india-rubber, is put over the rope, and bears a label to show the length and diameter of the charge contained. Considering that the miners are inevitably apt to carry and handle these pieces of rope very close to naked candles, it would seem advisable to give them some better protection against accidental ignition, which could easily be managed by a simple modification of the present envelope. Description of gun cotton used.

The charges of gun cotton rope used in these experiments were of three sizes, $1\frac{1}{8}''$, $1''$, and $\frac{7}{8}''$, and were found to be of the following weights, the copper wire and paper cover omitted* :— Charges of gun cotton.

6-inch charge of $1\frac{1}{8}$-inch rope = 685·5 grs. = 1·56 oz.
Ditto - 1-inch „ = 510·5 grs. = 1·17 oz.
Ditto - $\frac{7}{8}$-inch „ = 396·3 grs. = ·905 oz.

The wholesale price now being charged for it is 7*d.* per foot for the $1\frac{1}{8}''$ rope, 6*d.* for the $1''$ rope, and 5*d.* for the $\frac{7}{8}''$ rope.† This is equivalent to an average of 3*s.* 4*d.* per lb., or more than seven and a quarter times that of the powder tried in comparison with it. *Price.*

The gunpowder used in these mines, and employed in these experiments, is of a large grain, highly glazed; it is manufactured by Wakefield & Co., of Caterbeck, near Kendal, for blasting purposes, and costs the miners, at the present price, $5\frac{1}{2}d.$ per lb. The ingredients are 70 saltpetre, 16 charcoal, and 14 sulphur; those of Government powder being 75 saltpetre, 15 charcoal, and 10 sulphur. The proper quantity is inserted in the blasting holes by means of a rude tin measure, $6\frac{1}{2}$ inches long, and $\frac{13}{16}$ inch in diameter, fitted with a stick or handle which slides in and out of it. The stick is notched to show each quarter of the measure, and by drawing it out to the end, or to one of these notches, the whole or any fourth-part of the measure can be filled with powder. The measure in use for these experiments contained 754·7 grains, or 1·725 ounces gunpowder. Description of gunpowder used. *Price.* *Measure.*

When the blasting-hole is being charged with powder each measure is pressed tightly down after it is inserted, in order that the powder may be forced into any cavities or unsound places that may exist at the end of the hole. Partly from this pressure, and partly from irregularities in the rock, or in the action of the borer, the spaces occupied by powder charges do not bear any regular proportion to the quantity of powder employed. The length of hole occupied by each ounce of powder in these experiments varied from ·9″ to 1·62″, the average being rather less than $1\frac{1}{4}''$ (1·23″). Better data are, however, contained in a series of memoranda relating to previous experiments, which have been kindly communicated by Mr. Sopwith. Among these are some reports showing the exact diameters at the far ends of a number of blasting holes, as well as the space occupied by each charge Space occupied by charges.

* Two specimens of each size were weighed, and the average taken; the result agrees very nearly with the proportionate weights for perfect cylinders of those diameters. Assuming the weight of the 1″ rope to be right at 1·17 oz., the $1\frac{1}{8}''$ should be 1·48 oz., and the $\frac{7}{8}''$ should be ·897 oz.

† According to this scale the prices are very unequal in proportion to the weights, 1 lb. of $1\frac{1}{8}''$ rope comes to about 3*s.*, whilst 1 lb. of $\frac{7}{8}''$ rope costs about 3*s.* 8*d.*

charge of powder. From an examination of these reports are derived the following results :—

In 23 holes bored in Allenheads Mines—
Average diameter at far end, 1 inch. Average depth of each ounce of powder, 1·8 inch.

In 23 holes bored in Coalcleugh Mines—
Average diameter, 1·06″. Average depth of each ounce of powder, 1·46″.

In 25 holes bored in Weardale Mines—
Average diameter, 1·26″. Average depth of each ounce of powder, 1·16″.

The spaces occupied by the gun cotton charges are uniform for each size of rope, and are as follow, according to the weights above given: 1 ounce $\frac{7}{8}$″ rope occupies 6·63″; 1 ounce of 1″ rope occupies 5·12″; 1 ounce of $1\frac{1}{8}$″ rope occupies 3·84″. But the power of gun cotton has been assumed to be about six times that of the powder, so that if one ounce of rope were substituted for six ounces of powder in holes of the above dimensions, the relative spaces would be thus :—

In the 1-inch holes—
6 ounces powder = 10·8″; 1 ounce $\frac{7}{8}$″ rope = 6·63″; space gained for tamping, 4·17″.

In the 1·06-inch holes—
6 ounces powder = 8·76″; 1 ounce 1″ rope = 5·12″; space gained for tamping, 3·64″.

In the 1·26-inch holes—
6 ounces powder = 6·96″; 1 ounce $1\frac{1}{8}$″ rope = 3·84″; space gained for tamping, 3·12″.

To gain any additional space for the tamping is a great advantage, but on the other hand it must be considered that the present gun cotton charges will not adapt themselves to the irregularities of the blasting-holes, nor fill up any cavities in the rock, in consequence of which the effect of the discharge is frequently impaired.

Tamping.

Priming.

In tamping the charges, various materials, such as particles of the rock, shale, coal, sand, soft spar, and clay, are used. Clay has been most used with the gun cotton which has some paper or cotton waste put between the charge and the tamping. The charges are fired by a train of powder rolled up in paper (called a squib), by a safety fuze, or by electricity. If a squib is used a pricker is left in the hole whilst the tamping is being put in, and the squib is afterwards inserted in its place. The safety fuze, which is enclosed in a thin tube of gutta percha, can be put in communication with the charge, and have the tamping driven round it. With the gun cotton rope it is inserted in the hole left down the centre. With either this fuze or the squib (and especially the latter) an open passage is left through the tamping, when the priming is burnt out, which operates injuriously on the blasting effect; by using electricity this is avoided.

Effect of gases.

The blasting holes in the mines were approached immediately after the charges had been fired (except in the Blackett Level, where 11 charges were exploded at once), in order that the effect of the gases might be observed. The gunpowder charges produced a thick smoke, which lingered some time in the fore-heads of the drifts, but was carried off quickly in places where the ventilation caused any regular draught of air. In firing the gun cotton charges there was never much smoke, but there was a marked difference in the character of the vapours, according as the explosion had produced a satisfactory or incomplete effect on the surrounding material. When the explosion produced satisfactory results, no inconvenience was experienced in the vicinity ; but when the gun cotton had acted imperfectly, either in consequence of insufficient tamping, or because the blasting hole was crossed by fissures, the vapours mixed with the air were unpleasant and irritating to the throat and eyes.

Having

Having on three days pursued a great number of experiments in mines and quarries, the Committee on the fourth day (21st October 1864) received evidence from various superintending inspectors and practical miners as to the comparative advantages and objections connected with the use of gunpowder and gun cotton. Evidence was given as follows:—

Mr. William Curry, Mining Inspector, aged 51.

Has had 39 years' experience; has used gunpowder all the time, but gun cotton only since last July.

The nearest calculation he has come to as to the strength is one of gun cotton to five of powder by weight.

Thinks powder is generally more convenient for use. It can be used to advantage in places where there are cracks in the rock, when cotton cannot. In carrying either of them about there is no difference in convenience.

The gun cotton seems to act quicker, and if the quantity used is too great (*i.e.*, if the hole is overcharged), it brings away less stuff than an overcharge of powder would.

In limestone rock, if sound, cotton is best to use, but if unsound, powder. Has not seen gun cotton used in hazel (sandstone). In plate, gunpowder is best. In vein workings, if both materials were at hand, he would judge by indications given by the boring which of the two to use. If the first part of the hole were in hard rock, and the deeper part in fluor spar, he would use powder.

In short holes the advantage is with gun cotton, because the proper charge occupies less space and leaves more room for tamping; four inches of gun cotton are equal in force to about six inches of gunpowder.

Thinks, from his experience in the Blackett Level at Holmes Linn, after firing at one time 10 shots, and at another two or three shots, that the gas from gun cotton is more injurious than from gunpowder. He went in about 25 minutes after firing the 10 shots. Some of them had only blown out the tamping. He felt affected in his head and eyes. Had never felt thus affected by gunpowder. Usually there is not much difference between the time when the men can go to work after using gunpowder or gun cotton.

Accidents, when they happen, usually occur by tamping unsound holes; the powder gets into unsound parts and may be ignited by the tamping. Would use the same kind of tamping for both materials.

Thinks powder more easily affected by damp if the blasting holes are wet.

Mr. John Curry, Mining Inspector, aged 49.

Has had 34 years' experience, during all which time he has used gunpowder, but gun cotton only since last July.

The gun cotton is thought by the men more explosive and less safe than gunpowder. Thinks the same himself; has found, by putting the two alongside one another and applying a light, that the gun cotton goes off sooner, so as to be more liable to accidental ignition.

Considers the power of gun cotton to be five times that of powder by weight.

Considers gun cotton more handy to carry about, and also more convenient for charging; at the same time it requires more care.

Has carefully observed the blasting effects, and thinks that in *solid* rocks gun cotton is superior to powder; it breaks away the rock better and finds its way to the bottom of the hole more completely. In vein or flat workings, where there are any cavities, powder is much better, because its grains fill the irregular places. If gun cotton were granulated so as to do the same it would be as good, but in such small grains it would be very unsafe, because it would have no covering over it. In case of there being cracks in the hole, but too small for the powder grains to enter, he cannot say there would be any difference.

Has felt more inconvenience to his system from the gun cotton gas than from powder. The gunpowder smoke causes a feeling of suffocation, but not sickness or headache like the gas. He has sometimes felt unwell from gun cotton gas for twelve hours afterwards, and has not noticed any difference in the effect of the explosions, as to whether they were successful or not, on those occasions.

Knows of a miner named Arthur Graham being hurt by an accidental explosion. He was driving a charge of $\frac{7}{8}$″ rope in a hard limestone hole. As this sized rope was too small in diameter for the hole, he took a wooden driver and hammered it to make it spread or fill up the hole. It exploded; he was burnt by the flame and cut by bits of stone which were blown out; his face was not so much discoloured as it would have been from a similar explosion of powder. Accident.

Mr. J. Curry has cut gun cotton ropes without any inconvenience with knives both sharp and not sharp.

Would tamp powder first, for an inch, with powdered debris of the rock that are brought out by the jumper (borer), then the pricker would be pushed in; then shale, or some soft substance, would be applied with a hammer and iron driver. With gun cotton he would put paper, or cotton waste, over the charge, then dry clay, then spar, or some soft dry substance. Gun cotton may be fired with the safety fuze, with a squib, or with electricity.

The fuze leaves an opening when it is burnt out, and a squib does so still more. If a squib is used the pricker is left in before any tamping is inserted.

Considers that gun cotton is sometimes more powerful in effect than gunpower, but if it is six times the price of powder, then, value for value, the latter would move as much rock. But on the other hand, it must be considered that with gun cotton there would be fewer holes to bore, because the charge can be placed further back in the rock.

Mr. J. C. Cain, Mining Inspector, aged 49.

Has had 40 years' experience in mines, 30 of which he has known gunpowder, but gun cotton only two or three months.

Thinks the rope form of gun cotton convenient; it is put in the holes easier than gunpowder. Has seen about 20 or 22 charges inserted, some in holes bored by hand, and some in those made by the machine, and all without inconvenience.

Prefers the gun cotton if great strength is required; thinks it the most powerful of the two materials. Has seen it in the limestone, and once in the hazel (sandstone); it worked uncommonly well.

Has gone in a few minutes after firing both materials. The miners are sometimes 15 minutes, and sometimes 30 minutes, after firing a single shot of gunpowder, before resuming work, because of the dust and smoke; this, however, is in the worst places, and the time varies according to the state of ventilation. He has gone in within five minutes after firing the gun cotton in the hazel; found all pretty clear, but experienced a smell which made him a little sickly, and slightly affected his head.

Would apply the same tamping to both powder and cotton, but would be more careful with the latter.

John Henderson, Working Miner, aged 25.

Has been six years a miner. In using gun cotton he substitutes six inches of 1″ rope for three cans (measures) of gunpowder;* there is not much difference in effect. Thinks it stronger than powder. Has used it only in the limestone.

Gun cotton is about the same as powder to go back to after an explosion; would rather go in quickly to gunpowder. Gun cotton sometimes gives him sickness and headache. Goes back in about a quarter of an hour after firing two holes of gunpowder or gun cotton. Such a headache lasts the remainder of the day; never had one from any other cause. In ordinary work has fired three or four holes of gun cotton or gunpowder in six hours; the headache was after firing 30 holes in one day, seven or nine together; went back in about 20 minutes after firing them.

Would rather charge with powder; obliged to be more careful with gun cotton. Not much difference in the convenience, but thinks it easier to measure the powder than to cut the rope. Has sometimes found the charge stick in the hole, in which case he has tamped and fired it. With the machine this does not happen, because the hole is round throughout its length.

Thinks gun cotton very good stuff for shooting (blasting) with, and only objects to it as being more dangerous, and requiring more care; has never succeeded in firing gunpowder by striking it with a hammer, but has so ignited gun cotton.

Tamps gun cotton always with clay; would not use plate or coal. Thinks that gun cotton shatters the rock more than powder, and undoubtedly gets as much of it away.

Arthur Graham, Working Miner,

Accident.

who was injured by an accidental explosion, corroborated the account of the accident given by Mr. John Curry.

He had given the driver several blows with the hammer, when the charge (five inches of $\frac{7}{8}$″ rope) exploded, but he does not know how much it was compressed. The hole was in hard limestone, where there was no ore. The explosion made a terrible ring, and threw him down. It happened a month ago, and he has not been to work since.

Several other miners were in attendance, but the Committee considered that the above evidence, which was given with remarkable clearness and intelligence, contained all that need be recorded until the present experience has been extended.

F. Miller, Major, R.A., Secretary.

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* This is in the proportion of 1 to $4\frac{1}{2}$, by weight.

— II. —

Application of Gun Cotton to Mining and Quarrying Operations.

(granulated and compressed gun cotton.)

Memorandum of the Results of Experiments made by Mr. *Sopwith* and Mr. *Abel* at *Allenheads*, in September 1865, with Gun Cotton prepared from Pulp.

The gun cotton used in the experiments was in two forms, granulated and "compressed."

The granulated gun cotton was prepared from gun cotton pulp, by mixing it, when dry, with 10 per cent. of its weight of gum arabic, dissolved in sufficient water to render the gun cotton operated upon at one time just wet to the touch; after which the material was shaken for some time in a drum. By this treatment the gun cotton assumes a granulated form; the globular grains produced vary in size between that of coarse small-arm powder and the coarsest form of blasting powder.

The compressed gun cotton consisted of square pieces measuring from one-quarter to one-half inch across, and one-eighth to one-half inch in thickness. These were obtained by cutting up slabs of gun cotton, prepared from pulp compressed to a density of about 50 lbs. per cubic foot.

The gun cotton was sent to Allenheads, for the experiments, in the form of 1 oz. and $\frac{1}{2}$ oz. charges, contained in cylindrical pasteboard cases of 1 inch diameter and upwards.

The mode of charging the holes was varied somewhat with the direction in which these were bored. If they were vertical, or bored at an angle inclining downwards, the paper case containing the charge was inserted into the opening (a size being selected which fitted loosely into the latter), and the gun cotton was allowed to fall into the hole, the case being gently shaken and squeezed to aid the exit of the charge. If the inclination of the hole was inconsiderable, it was necessary to push down the gun cotton occasionally by means of a wooden rod, especially when the granulated form was employed. Holes which were horizontal, or had an inclination upwards, were more difficult to charge. A contrivance prepared for this purpose, but which was not sufficiently long for the horizontal holes in these particular experiments, consisted of a slightly conical tin tube about 12 inches long, the external diameter of one end being $1\frac{1}{8}$ inch, and of the other $\frac{3}{4}$ inch. The narrow opening of this tube was plugged with a small piece of cotton wool, and the charge of gun cotton was poured in at the other end. This wide end was afterwards inserted into the hole, the tube being passed into the latter as far as possible, and the charge was then pushed out of the tube by means of a wooden rod, which fitted tightly into the narrow or outer end of the tin tube. This arrangement is similar in its nature to the "measure" used by the miners for charging the holes with powder, and, if made of sufficient length, would probably remove the difficulty which was experienced in charging the horizontal holes.

All the holes were fired with the ordinary miner's safety fuze, which was inserted before the entire charge was introduced, as is the practice in blasting with gunpowder.

After the charge was inserted into the holes, and pressed down with the wooden rod, a plug of cotton waste was pushed down, for the purpose of carrying to the bottom any particles of the gun cotton clinging to the sides of the hole. The latter was afterwards tamped, as usual, first with clay, and afterwards with *debris* of limestone in a nearly powdered state.

The experiments in the mines were tried in the upper part of the Great Limestone in East Cross Vein. The stone is very hard. The rock selected was near that where experiments 21 and 22 were made by the Committee on 19th October 1864. Trials were also made in the limestone quarry at Thorn Green, where experiments were carried on by the Gun Cotton Committee in 1864, and where the quarrymen have since been in the habit of using gun cotton for the ordinary blasting of the limestone rock required for the adjacent limekilns.

All the holes were nominally 1⅛ inch in diameter. Some of them, in the hard limestone, tapered considerably, and would hardly have received 1-inch gun cotton rope throughout their entire length.

Experiments at Thorn Green Quarry, Allenheads.

Eight holes were experimented upon in this quarry. The first three were vertical holes bored in ledges left by previous operations, about 2 feet from the face of the ledge. They were numbered 1, 2, and 3, but were fired in reverse order, so that the work might be equalised, No. 3 being nearest the side face of the ledge, and No. 1 furthest from it, but about equally near to a flaw in the limestone.

No. 3 was 14 inches deep. It was charged with 6 inches of 1⅛ inch gun cotton rope (= 1·56 oz.), which left 8 inches for tamping. The proportion of gun cotton used was that which the quarrymen had been in the habit of employing for similar holes. The face was well opened up by the explosion, and the work done pronounced highly satisfactory by the men.

No. 2, 14½ inches deep, which now had a side face similar to that of No. 1, was charged with 1·5 oz. of the compressed gun cotton, which left 8½ inches for tamping. The report of this explosion was more violent than in the case of No. 3; pieces of the stone were thrown into the air to a great height, and the rock was very much broken up all round the hole. There was decidedly more work done than by the former explosion, and fissures were produced running back in the ledge to a considerable distance. The charge of the gun cotton used was evidently in excess of the work to be accomplished.

No. 1 hole, 14 inches deep, was charged with 1 oz. of the granulated gun cotton, leaving 7 inches for tamping. In this instance, the rock was well broken in all directions, and beyond the depth of the hole; large blocks were perfectly separated, and though not thrown off to any important extent, were readily removed by the men. The work to be performed by this explosion was perfectly accomplished, and apparently with a well-proportioned amount of powder.

No. 4 hole was vertical, 17 inches deep, and 2 feet 4 inches from the face. It was called a difficult hole, being in the midst of very solid rock. The men proposed to employ 8 inches of 1⅛ inch rope for the whole (= 2·08 oz.), and they would have used 8 oz. of gunpowder. It was charged with 1·5 oz. of the granulated gun cotton, leaving 6 inches for tamping. The work done by the explosion was pronounced by the quarrymen to be not only complete, but in excess of what they would have expected from their usual experience: a mass of rock 4 feet by 2 feet 4 inches, and 14 inches thick, was blown off the front of the face; the latter was fissured in several places to a depth of about 4 feet 6 inches, and one fissure extended backwards, at right angles to the face, about 4 feet in length.

No. 5 hole, vertical, was 18½ inches deep, and 2 feet 2 inches from the face. It was very similar in position to No. 4 hole, and considered to present about the same work to be accomplished. It was charged with 1 oz. of the compressed gun cotton, which left 14 inches for tamping. The work done was very similar, and pronounced fully equal to that performed by the 1·5 oz. of granulated gun cotton in the preceding experiment.

No. 6 hole, vertical, 14 inches deep and 2 feet from the face, appeared somewhat weaker than the two preceding ones, as the face of the rock exhibited two flaws, one on either side of the hole, about 1 foot and 18 inches to the right and left. It was charged with half an ounce of compressed gun-cotton; the tamping amounted to 12 inches. Two wide fissures were produced in the face, by the explosion, to a depth of about 5 feet, and some fissures (one about 4 feet long) were produced towards the back of the ledge. The masses of rock detached by this operation, which admitted of removal by the workmen, appeared nearly equal in quantity to the work done in the two preceding operations. The quarrymen were greatly astonished at the work done with the half ounce of material, in a position where they would have employed at least 6 ounces of gunpowder.

No. 7. This was a horizontal hole, 30 inches deep, in the face of a ledge of the limestone. The distance of the hole from the upper surface or ledge was 3 feet. The total width of solid rock to the right and left of the hole was 5 feet, there being a vertical fissure on the one side about 2 feet 5 inches from

from the hole. There was also a horizontal flaw, near the base, in the block of rock to be operated upon. The hole was considered a very strong one by the men. They proposed to employ 10 ounces of powder, or 12 inches of $1\frac{1}{8}$ inch gun cotton rope (= 3·12 oz.) The hole was charged with 1 oz. of granulated gun cotton, leaving 23 inches for tamping. By the explosion, a large block of the rock constituting the principal mass of the ledge situated above the hole, was detached and moved forward some distance, so that it was easily thrown off by the workmen; in addition, a smaller block, considerably to the left of the hole, was detached, and the rock was broken up beneath the hole so that a considerable quantity could be easily removed. The amount of stone detached by this operation, with one ounce of the granulated gun cotton, was about 53 cubic feet.

No. 8. This was a hole, 26 inches deep, driven at a slight angle into a face of the rock which had not yet been operated upon. The height of the face above the hole was about 6 feet, and the undisturbed surface-soil was above it. It was charged, in the first instance, with 1 oz. of compressed gun cotton, the tamping occupying $23\frac{1}{2}$ inches of the hole. The explosion blew only about 2 inches off the mouth of the hole, but produced vertical fissures, extending to some distance above and below the hole. This hole was afterwards re-charged with 2 oz. of compressed gun cotton, the explosion of which considerably increased the fissures, but the mass of rock was so closed in upon all sides, excepting the face, that a more considerable charge than 2 oz. would evidently have been required in the first instance (when the rock was quite sound) to effect any important dislodgment. After the second charge, the hole was too unsound for further experiments.

Experiments in the Mines at Allenheads.

There is some difficulty in forming an accurate estimate of the comparative work done, by different charges of gun cotton or gunpowder, in the confined space of a drift, or other similar locality; and the *débris* of previous blasting operations sometimes render it scarcely possible to estimate correctly the work accomplished.

The following is a brief statement of the most definite observations made :—

Ten holes had been previously prepared and were operated upon. In three cases of what was pronounced to be difficult work, the holes had been driven either in a horizontal or slightly sloping direction into the perfectly sound rock, in positions where no weakness had been induced by previous blasts. The work accomplished by the compressed gun cotton was pronounced excellent; the rock being removed up to the extremity of the holes. In one of these experiments, in a hole 13 inches deep, $1\frac{1}{2}$ oz. of compressed gun cotton were used, leaving 7 inches for the tamping. In another hole, 11 inches in depth, $\frac{1}{2}$ oz. of compressed gun cotton, with 8 inches of tamping, performed the work allotted to it perfectly. In a third hole, 16 inches deep, at the base of the rock, quite apart from previous blasting operations, 2 oz. of the compressed gun cotton were used, leaving 12 inches for tamping. The rock was cleanly detached to the base of the hole. The miners stated that the usual charge of gunpowder for a hole of this kind (about 8 oz.) would not have been likely to do any useful work, the position of the hole being a very difficult one.

Another hole of the same depth as the last, and similarly situated, was charged with only 1 oz. of the compressed material. In this instance a length of 10 inches of the hole was blown away with the surrounding rock, leaving 6 inches undestroyed.

A hole, 15 inches deep, driven almost horizontally into the rock, was also charged with 1 oz. of compressed gun cotton. In this instance again, a portion of the hole was not blown away, but this result may have been, to some extent, due to an unsoundness of the hole, at the base, which was discovered after the explosion.

Four holes were operated upon, which were known to be unsound (*i. e.*, to pass into cavities or fissures of more or less considerable size). Two of these, each 12 inches deep, which were pronounced very unsound, were charged with 1 oz. of the granulated gun cotton. In both instances, the gases resulting from the ignition of the gun cotton escaped through the fissures in the rear, and there was no destruction. (The same kind of failure took place on several

 occasions,

occasions, with the employment of both gun cotton rope and gunpowder, when the Committee operated upon unsound holes at this place in October 1864.)

A third hole, 14 inches deep, and unsound at the base, was charged with $1\frac{1}{2}$ oz. of compressed gun cotton, and 9 inches of tamping. On this occasion, the work done was pronounced good, the rock being blown away to within 4 inches of the bottom of the hole.

The fourth hole, 12 inches deep, in which the unsoundness was less obvious than in the preceding three, was charged with 1 oz. of granulated gun cotton, leaving 7 inches of the hole for tamping. The work allotted to this hole was perfectly accomplished, the rock being cleared to the base of the hole.

These trials of gun cotton charges, prepared from the pulp, though insufficient to furnish conclusive results as regards the merits of the explosion when employed in a granulated form, nevertheless afford sufficient experimental evidence to warrant the following statements:—

1. The *granulated* gun cotton pulp (not compressed) appears decidedly more effective as a blasting material than an equal weight of gun cotton in the form of rope. This result is to be ascribed mainly to the greater rapidity of explosion of the gun cotton when in the form of light granules; it may also, in some measure, be due to the circumstance that, in a hole charged with gun-cotton in the form of grains, or small fragments, the charge is in close contact on all sides with the rock, which is not the case when gun cotton rope is employed, unless the hole is perfectly cylindrical, which it very seldom is.*

This form of the material occupies a little more space in a hole than an equivalent weight of gun cotton rope; this circumstance may perhaps somewhat lessen the full destructive power of the granulated gun cotton; but a careful comparison of results is yet needed before a definite opinion can be expressed on this point.

2. The *compressed* gun cotton, in the form of small lozenge-shaped fragments, exhibited a superiority in destructive power over the granulated gun cotton, which may be ascribed to the fact of its occupying less space, and therefore affording room in a hole for a proportionately large amount of tamping, and also bringing the destructive agent well in rear of the work to be performed. The superiority of the gun cotton in this form over charges of gun cotton rope, as regards the comparative amount of work done by equal weights of the two, appears unquestionable.

3. No decided evidence was obtained of a superiority of the granulated and the compressed gun cotton over gun cotton rope, when employed in *unsound* holes.

4. The charging of holes, the position of which was horizontal, or nearly so, with gun cotton in the form of granules or small fragments, presented difficulties, to overcome which, special mechanical appliances would have to be used if the gun cotton be introduced into the hole without an envelope. There is also considerable risk, under these circumstances, of small fragments of the gun cotton becoming lodged on the sides of the hole, unless their removal can be ensured by carefully cleaning the holes with plugs of cotton waste, hemp, or soft paper, before the tamping is proceeded with. The charges might, however, be inserted into holes in thin paper cases, which would obviate the difficulties and possible risk attending the charging of the holes, though it would probably do away, to some extent, with the advantage resulting from the tendency of the granulated gun cotton, when employed without a case, to accommodate itself to any irregularity in the shape of the hole.

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* This remark as to the irregular shape of the holes does not apply to those made by the boring apparatus of Percy Westmacott, Esq., which has been partially in use at Allenheads Mines, and by which a perfectly cylindrical hole is effected. The operation of this machine was witnessed by the Committee in 1864, but it has not yet been brought into continuous use.

It appears from these trials that the employment of gun cotton, either in the compressed or granular form, as experimented with, is likley to be of material use for quarrying, mining, and general engineering purposes, and that, in the effective power of the explosion, and the comparatively small space which it occupies, it possesses decided superiority over gun cotton charges in the form of rope.

Thos. Sopwith.
26 February 1866. *F. A. Abel.*

— III. —

Application of Gun Cotton to Mining and Quarrying Operations.

(COMPRESSED GUN COTTON WITH DETONATING PRIMERS.)

Memorandum of Results of further Experiments made by Mr. *Sopwith* and Mr. *Abel*, at *Allenheads*, in February 1869, with Compressed Gun Cotton fired by means of Detonating Primers (submitted to the Secretary of State for War, 22nd February 1869).

In a series of experiments made in 1865 in mines and quarries at Allenheads, the great convenience of using compressed gun cotton, and also the great amount of explosive force which it exerts, were made fully apparent to all who witnessed these trials, which were made both underground and in the open air. This in a great measure had been done in the preceding year, when several members of the Gun Cotton Commission appointed by Government in 1864 visited Allenheads, and by permission of W. B. Beaumont, Esq., M.P. (the owner of the mines), had every facility for viewing the practical application of this new explosive material to mining and quarrying purposes.

In 1865 the object of the experiments was to exhibit the use of pulped gun cotton, converted into highly compressed masses, in which condition it is now extensively used in many mines and quarries.

In the present year the series of experiments now to be described have especial reference to a new and extraordinary development of power, which is most important as a means of blasting rocks in mines or quarries. This increase of power is obtained by employing a detonating substance to explode the gun cotton, instead of, or rather it may be said, in addition to, the ordinary fuze.

The mode of operation is as follows :—

The detonating substance is placed in a tin tube of the dimensions shown on the annexed wood-cut, and it occupies in the inside of the tube the space from A to B.

On this at C is placed a small plug of gun cotton, and the rest of the tin tube from C to the open end at D is empty.

Before leaving the manufactory a small piece of paper is pasted on the end merely to prevent anything falling into it, and this paper, so long as it remains, serves to distinguish the charged or useful "primers," as the tin tubes are called, from empty tubes.

It is in this form that the detonating "primers" are supplied from the manufactory at a cost of about 12*s.* per 100; probably when more extensively used the price will not exceed 1 *d.* each.

These "primers" are in fact large percussion caps, and are to be handled with care, as also to be protected from fire, and from all violent concussion. They explode with some violence when ignited, or if struck a violent blow, but with reasonable care are quite harmless, as much so as ordinary percussion caps for fowling-pieces. They may not only be safely handled, but may be thrown about with any freedom short of actual and intentional violence. Even when thrown on the ground or allowed to fall from a height of 20 or 30 feet, they are in no way affected by such usage.

(In recommending the use of a new explosive apparatus to those who have

not an opportunity of receiving personal explanations, it is proper to state the necessary amount of precaution as well as the practical freedom from danger.)

When the primer is to be used, the paper cover at D is removed, and an ordinary fuze is then inserted, so as to be in contact with the gun cotton at C. The tube is made large enough to receive an ordinary fuze, and as soon as the insertion has been made, the tube is pressed close to the fuze by a pair of common pliers.

This preparation is most conveniently done before entering a mine, but there is nothing to prevent its being done in a mine or quarry at any time.

The charges of compressed gun cotton are made with a circular hole to receive the fuze. Into this hole the small end of the tin primer is inserted, instead of the fuze, and this is the only difference in the mode of firing as compared with the usual mode of exploding gun cotton with a fuze.

It is important to observe that when the primer is thus used for blasting, it is not necessary to fill up the hole by any "stemming" or "tamping;" the hole may be left perfectly open, and those who know how often accidents occur in the process of "stemming" or "tamping" will at once appreciate the saving of time, and the amount of personal safety thus obtained.

In the case of failure of explosion, accidents often occur from the miners attempting to remove the "stemming" material. All this is avoided, as after a proper interval of time, the fuze with the primer attached can be safely and easily withdrawn from the open bore hole.

In the experiments now to be recited, some loose sand was put in and slightly pressed with a wooden rod. This, however, may be entirely dispensed with.

In preparing the bore holes for the experiments, it was a special object to place them in positions of strength far beyond what would be attempted in the case of ordinary explosion by gunpowder.

There were two series of experiments.

I. In very hard limestone underground; in Allenheads Mines.

II. In the same stratum of limestone, at the surface, at Thorngreen Quarry.

I.—*Allenheads Mines.*

No. 1. A hole of 15 inches in depth had been bored in the curve of an arch of very hard limestone rock, nearly 1 inch in diameter. Nine inches in length of cylindrical gun cotton (compressed) $\frac{7}{8}$ in diameter, were used, the weight being 2·6 oz. The rock surrounding the hole was carried away to the depth of 6 inches. The miners present stated that no useful effect would have been obtained from gunpowder, or to use their own expression, "it would not have been touched by powder;" in fact it was what miners call "a strong hole," and purposely made stronger than usual. The memorandum of the intelligent mine inspector who was present is as follows:—"Six inches left in bottom of hole; too strong; the result very fair under the conditions."

2. A 12-inch hole. The rock very unsound, bored at an angle of 45° to the face. Charge = 4 inches of 1 inch diameter (= 2·48 oz.). The rock much split and shattered, but not thrown off. The hole itself was widened and much broken off.

3. A 14-inch hole in very hard sound rock, bored in the crown of an arch at an angle of 45° to the face of the rock. Charge, 6 inches of $\frac{7}{8}$ inch diameter = 1·78 oz. The rock much split and partially detached, and on a further trial with a fresh charge of same quantity of gun cotton was cleared away to within 4 inches of the bottom of the hole; 10 inches of rock having been removed.

It must here be observed that the re-charging of unsound holes is a new feature, for neither gunpowder nor gun cotton, when used in the ordinary manner, would have accomplished such results as were obtained.

4. A 22-inch vertical hole, in very hard rock. Charge 3 inches, $\frac{7}{8}$ in diameter, and 4 inches of 1-inch diameter, together = 3·37 oz. The rock shattered a great deal, the mining results very good. This shattering and splitting of the rock extended to a distance of four feet on both sides of the hole.

5. An

5. An 18-inch hole, driven at 45° angle to the face; 2·6 oz. of gun cotton used; rock cleared away to within four inches of the bottom of the hole, much shattered. The Inspector's report is "good; three inches of hole left."

6. A hole 19½ inches deep, driven at an angle into face of rock; about three feet of rock in front of the upper part of the hole. The charge 3 inches ⅞″ diameter and 1-inch of 1-inch diameter (=1·51 oz.). The rock was shattered in front of the hole, and the latter was broken across and opened up into a cavity in the rear; about one-half of the hole was left in the bottom, and a further experiment was tried with 2 inches of 1-inch diameter (=1·24 oz.). The rock was broken up a good deal more, but not thrown off.

7. A 21½-inch hole, horizontal in vein, the rock variable in structure, and full of cavities. The face of rock 2½ feet from hole on two sides. Charge 9 inches ⅞″ diameter (=2·6 oz.). The rock was much cracked, especially beneath the hole. A second similar charge was exploded in this hole; the rock was greatly shattered and split in all directions.

8. A 20-inch hole, going sideways into the face of the rock, at an angle of about 45°. There was about 1 foot of rock in front of the mouth of the hole. Charge, 9 inches ⅞″ diameter (=2·6 oz.). The rock was torn open in all directions, a result which was pronounced to be very satisfactory by all of the miners present, and in the Inspector's notes it is called an "extraordinary good result."

9. A 23-inch hole in soft, unsound material, in the crown of an arch. Charge =4 inches of 1-inch (=2·48 oz.). The charge was not fired, owing to some defect in the mining fuze. The partly burnt fuze and primer were safely taken out of the hole, and a fresh primer and fuze, inserted in a 1-inch charge, were introduced, making the total charge = 3·1 oz. The rock was pulverised all round the hole, but not much useful work was accomplished.

10. A 21-inch hole, driven at a sharp angle into vein in an exceedingly strong place near the floor of a drift. It was emphatically stated that this hole could not have been attempted with gunpowder. The fuze went out after having been partly burnt. The primer was withdrawn, and a new one, in another 1-inch charge, was introduced, making the total charge 3·72 oz. The rock was much shattered in all directions.

11. A 11½-inch hole into face of hard limestone drift. Charge = 6 inches of ⅞″ diameter (=1·78 oz.). The rock was blown away in front of the hole to a depth of nearly 6 inches. The Inspector reports of this hole "very good, having split the side considerably."

Some further experiments were tried, from which a detailed description would convey less idea than a clear view of the general results. In stating these, we prefer to take the observations of the Mining Inspector, whose great experience of such matters enabled him to form a correct judgment. He states that previous to the experiments being made he had been fully satisfied as regards the superiority of gun cotton, as compared with gunpowder, for mining purposes, and more particularly so where the rock is hard, and the workings confined to drift levels, &c. In such cases, he states, much less drilling is required for the removal of a given quantity of rock than by gunpowder, and this constitutes an important element of mining economy. The superiority of gun cotton, he states, has been proved in practice, particularly in the works of the Blackett Level, where gun cotton has altogether superseded gunpowder. This being the case, when he arranged the holes for this series of experiments he had them purposely drilled very strong, not only stronger than ordinary *gun cotton* holes, but considerably stronger, with a view to test the powers of the process for the illustration of which these experiments were made. Owing to these circumstances, some of the explosions failed to produce anything like so satisfactory a result as would undoubtedly have been accomplished if less had been attempted. Nevertheless, he adds, where any unforeseen obstructions made their appearance, the rock, by means of the detonating gun cotton, was, to use his own words, "most wonderfully torn and broken up, fully proving to me that gun cotton is much more powerful when exploded by the detonating primers than when fired by an ordinary fuze."

II. *Thorngreen Quarry.*

1. A 12-inch hole was driven vertically into hard limestone. The charge=5 inches of $1\frac{1}{8}''$ diameter (=3·1 oz.), no tamping used; the rock was opened up radially in all directions, to distances ranging from three to four feet. Large, wide, and deep rents were made in the rear of the hole, in a line with the face.

2. A 12-inch hole; charge, $1\frac{1}{8}$ in. diameter (=3·1 oz.). The rock was rent open in several places up to the face.

3. Charge (=3·1 oz.). The rock was opened up to the face in several places, one wide rent and many cracks; it was also split up and shattered up to a joint at right angles to the face, at a distance of four feet from the hole.

4. A 24-inch hole bored vertically from a horizontal surface at $4\frac{1}{2}$ feet from one face, and $2\frac{1}{2}$ feet from the other, the rock being fast on the other two sides. The height of the rock from the floor of the quarry was 2 feet 5 inches. The charge 7 inches of $1\frac{1}{8}$ inch (=4·34 oz.). The entire block of rock was broken up level with the ground, and several of the fragments were scattered. This hole had been pronounced enormously strong; it could not have been attempted with powder, and the work done was magnificent.

5. A $17\frac{1}{2}$-inch hole, bored vertically, distance of the hole from the face of the rock, 2 feet 6 inches. The rock was fast on the other three sides. There was a joint in it about 16 inches from the hole on each side. Charge, = 3 inches of $1\frac{1}{8}''$ diameter=(1·85 oz.). The rock was shattered all round the hole, and cracked in several directions; it was removed off round about the hole to a depth of four inches. A second charge of 3·70 oz. was inserted with loose tamping of ashes over it. It opened up the rock to a distance of six feet in a line with the face, and large splits were formed up to the latter.

6. A 25-inch vertical hole in very sound rock five feet from one face and four feet 9 inches from the other. The rock was fast on the other two sides; charge, 4·3 oz. of $1\frac{1}{8}''$ diam. with loose tamping of ashes. The rock was opened up in wide rents to both faces, one split of the rock extending fully six feet down the side; cracks also extended in all other directions, to a distance of from four, to nearly six feet.

7. A 20-inch hole bored in a horizontal position about four feet from face in line with the hole, and three feet from the floor of the quarry. The rock was fast on two sides, and the height above the hole about 10 feet. Charge, 4·96 oz.; it was not found possible to insert the charge further than within three inches of the end of the hole. Some clay was pushed in with a wooden rod over the charge. The entire superincumbent mass of rock was observed to be lifted, and was much shaken; the stone was broken up for several feet all round the hole, and a large crack extended at least six feet upwards.

8. A $28\frac{1}{2}$-inch hole in a position similar to that described in No. 6, and at the same distance from the face. Charge, 6·2 oz. (= $1\frac{1}{8}''$ in.). The rock was broken up all round the hole, and cracks radiated from it to a distance of five feet.

8. A 26-inch hole in similar position to No. 8. Charge, 9·4 oz. (=$1\frac{1}{8}''$). A long wide split was produced in a line with the face, and the rock was split to considerable distances in all directions, radiating from the hole.

10. A disk of gun cotton, weighing 18 ounces, was placed on the centre of the upper surface of a perfectly sound slab of limestone rock which was lying on the floor of the quarry. It measured nine feet in length, from four to five feet in width, and its average thickness was about 12 inches. This mass of stone was instantly broken into seven large pieces, and the portion immediately beneath and around the disc was shattered into small fragments.

11. A disk, weighing 18 ounces, of gun cotton was inserted into a natural crevice or joint, extending vertically up the entire height of the rock in the quarry. The joint was three feet distant from the face in line with the joint. The explosion violently shook the entire mass of rock, which was divided from the main body by the joint. The movement of this large mass at the moment of explosion was very perceptible. The crevice itself was considerably widened,

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and a large block of rock near the base was pushed forward one inch from beneath the superincumbent mass.

A charge of 17 ounces of gun cotton was made up by stringing together some mining charges; this was inserted into the crevice which had been widened as already described, at a distance of five feet from the ground. Its explosion caused the entire mass of rock to move, extended the width of the crevice, and threw off considerable portions of the surrounding stone. It was evident from this result that if two of the 18 oz. disks of gun cotton had been available, their explosion in the crevice would have had the effect of throwing down the entire enormous mass of rock.

The experiments in this quarry were witnessed by the mine inspector, whose opinions have been already stated. In expressing his opinion, he states that the results effected in crevices of rock at Thornhill Quarry, as well as on the surface of large tables of limestone, quite exceeded anything he had ever seen, and was quite beyond what he could have credited, had he not been an eye-witness thereto.

From a careful observation of the manner in which these extremely violent explosions effect the shattering displacement or removal of rock, it appears that the efficiency, as compared with gunpowder or gun cotton exploded in the ordinary manner, is much greater in very hard rock than in softer strata, or when employed in displacing the matrix of veins; but this is the very circumstance to which we are desirous to call attention, as being pre-eminently the conditions under which we consider that the use of the detonating primer is likely to effect a material economy in the working of mines. Nothing can be more safe or convenient in ordinary handling than the compressed gun-cotton as now prepared for sale by Messrs. Prentice & Co., of Stowmarket Powder Works. Nor can we imagine an explosive apparatus, of such great powers as is obtained by the use of the detonating primers, to be more safe and convenient for use. As an illustration of the different results obtained by the use of the primer as compared with the explosion of gun-cotton by an ordinary fuse, it may suffice to mention that the following illustration was used at Allenheads:—A disk of gun-cotton, weighing one ounce, was laid upon a large slab of sandstone, fired by means of the ordinary fuse; it merely ignited with a sudden burst of flame, without much noise, entirely without violence, and quietly burnt away in about 30 seconds, doing no injury whatever to surrounding substances; but when the same quantity of gun cotton of the same quality was laid on the same stone, and fired by means of a detonating primer as already described, the whole mass instantaneously exploded with a report as loud as a cannon, and with an amount of destructive energy which could with difficulty be understood by any who had not quietly seen and carefully examined the result; not only was the stone shattered and broken into many pieces, but those portions of it which were immediately under the charge, were literally ground and crushed into sand. Such is the enormous difference produced by merely using the detonating primer; an increase of power which merits the attention of all who are concerned in the economy of mining operations.

(signed) *Thos. Sopwith*, A.M., F.R.S.
F. A. Abel, F.R.S.

GUN COTTON, &c.

REPORTS relative to the Application of Gun Cotton to Mining and Quarrying Operations.

(*Mr. Wentworth Beaumont.*)

Ordered, by The House of Commons, *to be Printed,*
30 *April* 1869.

179.

Under 2 *oz.*

NEW NATIONAL GALLERY.

RETURN to an Order of the Honourable The House of Commons, dated 10 March 1869;—*for*,

COPIES "of CORRESPONDENCE between Her MAJESTY'S OFFICE of WORKS and the ARCHITECT of the NEW NATIONAL GALLERY respecting his APPOINTMENT:"

"And, of his INSTRUCTIONS for the Preparation of DESIGNS for the New Building."

— No. 1. —

Mr. *Alfred Austin* to Mr. *E. M. Barry*.

Sir, Office of Works, &c., 16 June 1868.

I AM directed by the First Commissioner of Her Majesty's Works, &c., to inform you, that with the approval of the Lords Commissioners of Her Majesty's Treasury, his Lordship has appointed you to be the Architect for the New National Gallery, with the following remuneration, as set forth in the instructions to architects, February 15th 1866, viz., a Commission of 5 per cent. upon the outlay, such Commission to include all expenses of measuring, superintendence, &c., except the salary of the Clerk of the Works.

I am, &c.
(signed) *Afred Austin*,
Secretary.

E. M. Barry, Esq.

— No. 2. —

Mr. *E. M. Barry* to Mr. *Alfred Austin*.

Sir, 21 Abingdon-street, 20 June 1868.

I HAVE to acknowledge the receipt of your letter of the 16th inst., informing me that the First Commissioner of Her Majesty's Works, &c., has done me the honour to appoint me to be the Architect of the New National Gallery.

In accepting the appointment, I have to express the high gratification it has afforded me, coming, as it does, after the report of the Judges of Designs in the recent competition, that of all the designs submitted to them, mine exhibited the greatest amount of architectural merit; and I have to assure the First Commissioner that no exertion shall be spared on my part to render the building suitable for the important purposes for which it is destined, and not unworthy of the nation as a work of art.

As regards the terms of remuneration, I presume that they are in accordance with those adopted in the case of other architects now employed by Her Majesty's Government, such as Mr. Scott, Mr. Street, and Mr. Waterhouse. I also assume that it is intended to erect the National Gallery by a contract for a lump sum, based upon quantities prepared in the usual way. I have therefore no observations to offer on the terms proposed.

I shall be glad to be informed whether it is intended to proceed immediately with the new building.

I have, &c.
(signed) *Edward M. Barry*.

Alfred Austin, Esq.

— No. 3. —

Mr. *Alfred Austin* to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 26 June 1868.

I am directed by the First Commissioner of Her Majesty's Works, &c., to acknowledge the receipt of your letter of the 20th inst., in reference to your appointment as Architect for the New National Gallery.

To prevent any possible future misunderstanding, the First Commissioner desires me to inform you, with regard to your remark as to the report of the Judges of Designs, that it was upon a consideration of all the circumstances attending the competitions for the National Gallery and the Law Courts, that your appointment took place.

With respect to the concluding paragraphs of your letter, I am to inform you that the terms of remuneration specified in the Board's letter of the 16th inst., are the same as those adopted by this Department in other cases; and that whilst it is most likely the building will be erected on the basis of a contract in gross, the First Commissioner cannot bind himself beforehand to adopt that course.

I am to add that as soon as the ground is acquired, and the design approved of, it is intended to commence the building, and that instructions will shortly be sent to you to place yourself in communication with the Trustees of the National Gallery, and of the National Portrait Gallery, with that object.

I am, &c.
(signed) *Alfred Austin,*
Secretary.

E. M. Barry, Esq.

— No. 4. —

Mr. *E. M. Barry* to Mr. *Alfred Austin.*

Sir, 21, Abingdon-street, 4 July 1868.

Domestic affliction has prevented me from replying sooner to your letter of 25th ultimo, respecting my appointment as Architect of the New National Gallery, which you inform me will be commenced as soon as the ground is acquired, and the design approved of.

It is the first intimation I have received that the Government considered that there was any connection between the competition for the National Gallery and any other matter; and I had supposed, that my appointment as architect of the former was due to the fact, that the Judges of Designs had declared my design for a new building to possess the greatest amount of architectural merit; and to the statement of the competitors that their inducement to furnish designs was their belief that an understanding existed that one of the competing architects would be selected for employment. As, however, you refer to all the circumstances attending the competitions for the National Gallery and the Law Courts, I may perhaps be permitted to advert to those circumstances, as far as they affect my position. I was honoured by invitations to send in designs to both competitions, in common with Mr. Scott and Mr. Street. The latter gentleman and myself furnished designs in each competition, and I was the only competitor who was distinguished by the favourable mention of the judges *in both cases.*

Deeply as I appreciate the compliment of being appointed architect of the National Gallery, I shall have reason to regret having been placed in the position awarded to me by the judges of the two competitions, if I am to understand that in consequence of it, it has been thought right to appoint me to the lesser work, and to refuse me the opportunity of obtaining lasting fame and advantages, by having my name connected with the largest and most important public building of the age, in respect of which I have been specially recommended for employment (jointly with Mr. Street), by the Judges of Designs, whose award

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the competitors were told at the outset would be regarded as final by Her Majesty's Government; and on the faith of which promise, I, in common with the other competitors, agreed to enter the competition.

I am, &c.

Alfred Austin, Esq. (signed) *Edward M. Barry.*

— No. 5. —

Mr. *Alfred Austin* to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 24 October 1868.

ADVERTING to the Board's letter to you of the 16th June last, I am directed by the First Commissioner of Her Majesty's Works, &c., to request that you will have the goodness to prepare a design for rebuilding the National Gallery upon the site shown by the accompanying plan, viz., the site of the existing Gallery with the additional ground coloured yellow. With regard, however, to the portion of the site now forming part of the barrack-yard, it is not the intention of the Board that any part of the new building should be built upon it, but only over it, so as to leave so much of the site a covered way or arcade, for the use of the soldiers occupying the barrack-yard. It is also the intention of the Board, as shown by the plan, that Hemmings-row should be left of the width of from 50 to 52 feet.

Copies of the reports of the 5th August 1867, and 9th December 1867, by the Trustees and Directors of the National Gallery, and the Trustees of the National Portrait Gallery respectively, on the requirements for the galleries, are sent to you herewith for your guidance; and I am to request that you will put yourself in communication with those bodies, for obtaining such further information as you may require.

The design is in the first instance to be confined to the plans and sections on a small scale, the elevations may be deferred until the First Commissioner has an opportunity of considering the arrangements you propose to make.

I am, &c.

(signed) *Alfred Austin,*

E. M. Barry, Esq. Secretary.

Enclosure 1, in No. 5.

REPORT of the TRUSTEES and the DIRECTOR of the National Gallery, on requirements as regards the care and exhibition of the Pictures, and the additional Space to be provided in the proposed Enlargement of the Gallery.

General Plan.

1. As the First Commissioner of Her Majesty's Works has not expressed a wish that the Trustees and Director should state their views as to the general architectural arrangement of the New National Gallery, they forbear to observe upon it, further than by saying that they assume that in the new building the collection of the works of the Old Masters will be placed in one portion of it, and that the works of the British School (including the Turner Collection) and of such modern schools as may hereafter be represented in the National Gallery, will, for the most part, be exhibited in another and separate portion of the building. The appropriation of the different parts of the building to these respective purposes will of course, in some measure, depend upon the question of future extension of space.

Hanging Space: Old Masters, 2,400 feet.

2. Having thus far defined the general principal of internal arrangement, the Trustees and Director proceed to deal with the various questions of detail.

First, as regards the pictures by the Old Masters in the charge of the Trustees.—Their number may be estimated at about 400; the space required for their effective and proper display may be calculated on an average of three linear feet of wall for each picture, or 1,200 linear feet in all. The actual space now allotted to them does not amount to more than 750 feet, or little more than half of what is necessary.

Taking into consideration the contents of the principal picture galleries of Europe, and the limited number of really fine works which are ever likely to be brought into the

market, it would appear to be unnecessary to make provision for a collection of the works of the old masters more than three times as extensive as that at present possessed by the nation; nor is it likely that within the next quarter of a century, judging by the average rate of increase during the last ten years, it will be doubled in size. The Trustees and Director are therefore of opinion that, if in the new National Gallery 2,400 linear feet of wall be reserved for the exhibition of the works of the old masters, that space will be sufficient for the requirements of the collection for many years to come.

Raphael Cartoons, 200 feet.

3. It is trusted that the cartoons by Raphael will ultimately be placed, by Her Majesty's permission, in the National Gallery, and that they will be exhibited by themselves in a hall worthy of such great works. The space required for their suitable display would be about 200 linear feet.

Loan Collections, 300 feet.

4. The Trustees and Director are of opinion that it will be very desirable to have also two good-sized rooms, with about 300 linear feet of hanging space, for the exhibition of pictures lent to, or deposited in, the National Gallery. By encouraging the possessors of valuable and important pictures to send them to the National Gallery for exhibition, the principal works in the private galleries of the kingdom might be made better known to artists and to the public. Such exhibitions might also lead to important acquisitions.

Total Space:— Old Masters, 2,900 feet.

5. The whole hanging space therefore required for the works of the old masters, for the cartoons of Raphael, and for the loan rooms, would thus amount to 2,900 linear feet. It must be remembered that all the space intended for the National collection of the old masters would not be required at once, and that a part of it might be temporarily employed for other purposes, as, for instance, for loan exhibitions.

National Portrait Gallery.

6. It is understood that Her Majesty's Government are desirous of placing the National Portrait Gallery in Trafalgar-square; with the requirements of that collection the Trustees and Director have no concern, but they are of opinion that if it should be placed under the same roof as the National Gallery it should be kept completely apart from it, with a distinct and separate entrance, and under a distinct and separate administration.

Modern Pictures, British School, 1,300 feet.

7. The number of modern pictures now under the charge of the Trustees is about 300, exclusive of the Turner Collection. To exhibit these properly 900 linear feet of wall would be required; and further provision ought to be made for future acquisitions.

There still remains one collection of pictures for which adequate space must be provided, that bequeathed to the nation by Turner; for its proper exhibition 400 linear feet of wall will be required.

Modern Foreign Masters.

8. In addition to the collections already mentioned, it may be deemed expedient to provide a gallery for the works of modern Foreign painters of eminence.

The time may come when it will be considered very desirable to purchase such works, and if it were generally known that the National Gallery would be ready to receive the works of modern Foreign painters, donations of such works would, there is reason to believe, be made to the nation; some few examples having already been presented to the National Gallery, and having proved attractive additions to it.

It is scarcely necessary to urge the interest which would be felt by the public in a collection of the works of the principal modern Painters of Europe, or the beneficial influence which such a collection might have upon the National school of art.

Ground Floor:— Residence, Offices.

9. Such being the disposition which it appears most desirable to make of the various collections of pictures upon the principal floor of a new National Gallery, the following suggestions are offered as regards the arrangements on the ground floor.

In addition to the residence for the Keeper, a suitable apartment should be provided for the Director, in which he could transact business and receive persons who might desire to see him.

As regards the actual requirements for the business of the National Gallery, and for the accommodation of the various services and persons connected with it, such as rooms for unpacking, cleaning, repairing and storing pictures; accommodation for students; the proper appliances for heating, &c.; it will be useful to refer to Mr. Wornum's letter to the Secretary of the Office of Works, dated the 25th of June 1866, and printed with the "Instructions to Architects," in the Parliamentary Paper (No. 91) on the NEW NATIONAL GALLERY, dated 28th February 1867, for suggestions on that head.

Art Library.

10. The Trustees and Director invite attention to some further additions which may be desirable or even necessary, if the New National Gallery is to be rendered as complete and as useful as possible, and worthy of the country. It is suggested that these additions should consist of an Art Library, and of rooms for the exhibition of Drawings and Sketches by both old and modern masters. It is not proposed that the library should be a general art library, like that now in course of formation at South Kensington, but that it should include histories of the various schools of painting, and biographies of painters of different countries; books of reference and treatises relating to painting and subjects immediately connected with it; local guides, catalogues, and descriptions of collections; and works containing engravings of pictures in the principal public and private galleries in this country and on the Continent. Such a library need not be very extensive, and one large room would probably be all that would be required.

11. A general opinion appears to prevail amongst artists and those who take an interest in art (and such was the recommendation of a Select Committee of the House of Commons in 1860), that the collection of drawings by the old masters, now kept in the British Museum, should be transferred to the National Gallery. It is obvious that this is the proper place for them. They illustrate the pictures, and in many cases they determine the authorship of doubtful works. Drawings and Sketches.

In the principal public galleries of Europe the pictures and drawings by the Old Masters are kept together; and in the Louvre, and in the Uffizj at Florence, the drawings form an important and attractive portion of the collections exhibited to the public.

It is suggested that three good-sized rooms at least should be provided for the exhibition of Drawings and Sketches by the Old Masters.

12. The bequest of Turner includes a large number of his water-colour drawings and pencil sketcthes, which ought to be exhibited to the public under convenient regulations. Two large rooms are required for this purpose. Turner Drawings.

13. As further bequests of water-colour drawings may be made to the National Gallery, it is worthy of consideration whether space should not be provided for the exhibition of such works. Space for future Bequests of Drawings.

14. The Trustees and Director recommend that in the construction of the galleries for the exhibition of pictures the principle of ample and unobstructed light should be carefully observed. This can be most effectively done by lighting the rooms from the top; and recent experiment appears to prove that in regulating the space or opening for the admission of light, it should in no case be less than one half of the superficies of the floor. It is, however, considered that small rooms may be well adapted for the exhibition of pictures of a certain class when lighted from the sides. Lighting.

15. They are further of opinion that there should be two classes of rooms for the exhibition of pictures, viz., halls or galleries for pictures of a large size, and smaller rooms of various sizes for other pictures. Three halls, one for the Old Masters generally, a second for the Cartoons of Raphael, and a third for the British School, might be sufficient. The construction of the hall for the British School might be deferred in contemplation of a future enlargement of the Gallery. With respect to the dimensions of these halls or galleries, and the proper provision for the circulation of the public, for the supervision of the police, and for ingress and egress as regards the building in general, the Trustees and Director would refer to the printed correspondence (Parliamentary Paper, No. 330, 27th May 1864), which took place between them and the First Commissioner of Works in 1864, respecting the plans of Messrs. Banks and Barry for the erection of a new National Gallery in the Gardens of Burlington House. Upon looking at the plans there referred to it will be seen that a width of 40 feet was adopted for the breadth of the largest rooms; in a plan subsequently prepared by Mr. Pennethorne a somewhat greater breadth was adopted. After fully considering this subject, the Trustees and Director are of opinion that the breadth of the largest halls or galleries should not exceed 45 feet, or be less than 40 feet. With regard to the height of the various rooms, they consider it a matter of primary importance that the light should not be too high, and that on this and other points the architect should be placed in communication with the Director of the National Gallery. Dimensions of Rooms.

16. For several valuable suggestions on the subject of the construction of a picture gallery the Board would refer to the printed Report of the Judges appointed to consider the Designs for a new National Gallery in 1867 (Parliamentary Paper, No. 91, referred to above). Warming and Ventilating.

The appliances for warming should, as they justly observe, be so contrived as to give out the heat at some distance from the walls on which the pictures are hung.

The solidity of the walls is in the highest degree important for the conservation of pictures, both as regards equalisation of temperature and for general security.

Means of ventilation should be ample, and the windows or openings in the roofs should be so contrived as to permit ingress or egress of air without allowing the sun's rays to enter the rooms; and the lighting should be so contrived as to obviate the necessity of using blinds.

These suggestions, however, should be made the subject of careful experiment.

17. In the distribution of rooms attention should be paid to the due provision for the arrangement of the pictures according to chronology and schools, an arrangement considered to be of great importance. Distribution of Rooms.

18. The Trustees and Director are desirous that every available precaution should be taken to render the New National Gallery thoroughly fire-proof; and they would suggest that the chief of the Fire Brigade should be consulted as to whether any special arrangements could be made for protecting and removing pictures in case a fire should take place. Security against Fire.

SUMMARY of space at present required, as suggested to be provided on the principal floor:—

	Feet linear.
1. Old Masters	2,400
2. Cartoons of Raphael	200
3. Loan Collections	300
4. British School	900
5. Turner Collection	400
TOAL	4,200

National Gallery, 5 August 1867.

Enclosure 2, in No. 5.

COPY of REPORT of the Trustees of the National Portrait Gallery upon the Requirements for a Permanent National Portrait Gallery.

(Forwarded to the First Commissioner of Her Majesty's Works, &c., 9th December 1867.)

GENERAL VIEW of the Requirements suggested in any permanent Construction of a NATIONAL PORTRAIT GALLERY.

The total length required for the public galleries should not be less than 2,000 linear feet.

The width of the galleries not to be less than 30 feet.

The height of the walls not to be less than 20 feet.

The Trustees desire to point out at the same time that one room, at least, of a large size, or a central hall, would be requisite for the reception of their large picture of the Interior of the Old House of Commons in 1833, painted by Sir George Hayter, and purchased by Lord Derby's Government in 1858, as well as for the possible acquisition of other similar works on a like scale.

Whenever the employment of lighting from above may be found practicable, it would be far preferable for the public galleries.

The Trustees feel that most of the requirements and suggestions included in the National Gallery Report, of which a copy has been confidentially placed by the First Commissioner of Her Majesty's Works in their secretary's hands, are the same as those which they would consider essential for the National Portrait Gallery.

In addition, however, to these requirements, may be stated the necessity for strong walls and flooring to sustain sculpture both in bronze and in marble.

An unbroken line of galleries with flat walls has generally been found to be fatiguing to the eye, and productive of difficulty in finding any particular picture.

A division into smaller apartments (some being smaller and on a different level) for the display of minuter objects, such as medallions, miniatures, statuettes, and engravings, would be more advantageous. By such an arrangement, the classification of subjects would be greatly facilitated and objects more readily found.

With respect to clause No. 6 in the Report referred to, the Trustees desire to leave it to the judgment of Her Majesty's Government whether the apartments assigned for their ultimate reception should be part of the same edifice designed for the National Gallery, or rather a separate building. If, however, it be the former, then they entirely concur with the Trustees and Director of the National Gallery, who state that they are of opinion that the National Portrait Gallery "should be kept completely apart from the National Gallery, with a distinct and separate entrance, and under a distinct and separate administration."

FURTHER SUGGESTIONS.

Good light.

Building to be fire-proof.

Conditions for warming and ventilation the same as those required for the National Gallery.

Commodious staircases.

Easy means of communication between various parts of the building.

Board-room for the Trustees.

Library and apartments to contain presses holding large prints and tracings from pictures.

Two small apartments for copyists and picture restorers; stowage for their boxes, copies, and easles.

Rooms, official and residential, for the secretary, who is also the keeper.

Rooms for the house-keeper and the porter.

Spare

Spare rooms to hold packing cases, frames, easels, lamps, ladders, &c. &c., belonging to the gallery.
Waiting room.
Room for attendants to dine in.
Coal cellars and dust places.
Closets, cleaning, washing, and retiring rooms.

(signed) *George Scharf,*
21 July 1868. Secretary and Keeper.

— No. 6. —

Mr. *E. M. Barry* to Mr. *Alfred Austin.*

Sir, 21, Abingdon-street, 28 October 1868.

I HAVE to acknowledge the receipt of your letter of the 24th inst., conveying to me the instructions of the First Commissioner of Her Majesty's Works, &c., to prepare a design for rebuilding the National Gallery, and to put myself in communication with the Trustees and Director of the National Gallery, and the Trustees of the National Portrait Gallery.

I have proceeded to comply with these instructions, and shall feel obliged if the First Commissioner will cause to be returned to me the drawings for the National Gallery, submitted by me in the late competition.

I am, &c.
Alfred Austin, Esq. (signed) *Edward M. Barry.*

— No. 7. —

Mr. *Alfred Austin* to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 2 November 1868.

IN reply to your request that the drawings for the National Gallery, submitted by you in the late competition, may be returned to you, I am desired by the First Commissioner of Her Majesty's Works, &c., to state that he has given directions accordingly. Two framed and glazed drawings of the exterior and interior, will be sent to you from this office, and the others will be delivered by Mr. Fincham.

I am, &c.
E. M. Barry, Esq. (signed) *Alfred Austin,*
Secretary.

— No. 8. —

Mr. *E. M. Barry* to Mr. *Alfred Austin.*

Sir, 21, Abingdon-street, 3 November 1868.

I HAVE to acknowledge the receipt of your letter of yesterday's date, which accompanied the drawings submitted by me in the late competition for the new National Gallery.

In the Report of the Trustees and Director of the National Gallery, forwarded to me in your letter of the 24th ultimo, reference is made, in clause 15, to the printed correspondence respecting the plans prepared by Messrs. Banks & Barry; I have obtained the printed correspondence, and should be able to understand the views of the Trustees and Director more clearly, if I could be furnished with the plans referred to by them.

I am, &c.
Alfred Austin, Esq. (signed) *Edward M. Barry.*

— No. 9. —

Mr. *Alfred Austin* to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 7 November 1868.

I AM directed by the First Commissioner of Her Majesty's Works, &c., to acknowledge the receipt of your letter of the 3rd inst., and to send to you, agreeably to the request contained in it, the accompanying two sheets of drawings prepared by Messrs. Banks & Barry, and dated 9th May '64; and I am to request that you will have the goodness to return them as soon as they are no longer required by you.

I am, &c.

Edward M. Barry, Esq. (signed) *Alfred Austin,*
Secretary.

— No. 10. —

Mr. *E. M. Barry* to Mr. *Alfred Austin.*

Sir, 21, Abingdon-street, 5 November 1868.

ADVERTING to your letter of the 24th ultimo, respecting the new National Gallery, I have to inform you that I have carried out the instructions contained therein, by placing myself in communication with the authorities of the National Gallery, and the National Portrait Gallery, in order to obtain from them full information as to their requirements, in respect of the accommodation to be provided for them in the new building.

I should be glad if arrangements could be made to place me also in communication with the Department of Science and Art at South Kensington, as it is probable that the experience acquired by the officers of that department, may enable them to furnish information which may be advantageous to the public service.

I am, &c.

Alfred Austin, Esq. (signed) *Edward M. Barry.*

— No. 11. —

Mr. *Alfred Austin*, to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 10 November 1868.

I AM directed by the First Commissioner of Her Majesty's Works, &c., to acknowledge the receipt of your letter of the 6th inst., and to send to you the enclosed copy of a letter which he has caused to be addressed to the Department of Science and Art, in reference to your wish to be put in communication with that department.

I am, &c.

Edward M. Barry, Esq. (signed) *Alfred Austin,*
Secretary.

Enclosure in No. 11.

Sir, Office of Works, &c., 10 November 1868.

I AM directed by the First Commissioner of Her Majesty's Works, &c., to inform you that Mr. E. M. Barry having received instructions from His Lordship to prepare a design for rebuilding the National Gallery, has expressed a wish to be placed in communication with the Department of Science and Art at South Kensington, as it is probable that the experience acquired by the officers of that department, may enable them to furnish him with information which may be advantageous to the public service; and I am to state that the First Commissioner will be obliged to you by your moving the Committee of Council of Education to comply with Mr. Barry's wish.

I am, &c.

H. Cole, Esq., C.B. (signed) *Alfred Austin,*
Secretary.

— No. 12. —

Mr. *E. M. Barry* to Mr. *Alfred Austin.*

Sir, 21, Abingdon-street, 13 November 1868.

I HAVE to acknowledge the receipt of your letter of the 17th instant, which accompanied the drawings prepared by Messrs. Banks & Barry, for a proposed National Gallery at Burlington House, and I now return the drawings according to the request contained in your letter.

I am, &c.

Alfred Austin, Esq. (signed) *Edward M. Barry.*

— No. 13. —

Mr. *Alfred Austin* to Mr. *E. M. Barry.*

Sir, Office of Works, &c., 16 November 1868.

ADVERTING to the Board's letter of 24th ultimo, in which you were requested to prepare a design for rebuilding the National Gallery, I am directed by the First Commissioner of Her Majesty's Works, &c., to bring under your notice Mr. Layard's pamphlet having reference to the subject.

The Board regret that they have been unable to procure for you a copy of the pamphlet, but they understand from Mr. Wornum of the National Gallery, that he has lent you his copy.

I am, &c.

(signed) *Alfred Austin.*

Edward M. Barry, Esq. Secretary.

Office of Works, &c.
March 1869.

A. H. LAYARD,
First Commissioner of Her Majesty's Works and Public Buildings.

NEW NATIONAL GALLERY.

COPIES of Correspondence between Her Majesty's Office of Works and the Architect of the New National Gallery respecting his Appointment; and, of his Instructions for the Preparation of Designs for the New Building.

(*Mr. Beresford Hope.*)

Ordered, by The House of Commons, *to be Printed,*
19 *March* 1869.

88. *Under* 1 *oz.*

NEW PALACE OF WESTMINSTER.

RETURN to an Order of the Honourable The House of Commons, dated 16 April 1869;—*for*,

COPY "of CORRESPONDENCE between the First Commissioner of Works and *Edward M. Barry*, Esquire, respecting proposed Arrangements for the TWO HOUSES of PARLIAMENT, together with the PLANS relating thereto."

Mr. *Alfred Austin* to Mr. *E. M. Barry*.

Sir, Office of Works, S.W., 16 September 1868.

I AM directed by the First Commissioner of Her Majesty's Works, &c., to request that you will submit to his Lordship an estimate for carrying into effect the recommendation of the Select Committee of last Session on House of Commons Arrangements based,—

1st. On the supposition that the two Houses would have kitchen and dining rooms in common.

2ndly. On the supposition that the House of Lords would be left untouched, and new dining room accommodation provided for the House of Commons only.

I am further directed to call your attention to the report of the Select Committee on Kitchen and Refreshment Rooms, House of Commons, of last Session, and to request that you will prepare a plan and estimate for carrying into effect the recommendation of that Committee to convert the Conference Room and adjoining Committee Rooms into Dining Rooms for the two Houses of Parliament, while carrying out in other respects the recommendation of the Select Committee on House of Commons Arrangements.

It is desirable that you should consult the chief officers of the departments which will be affected by the carrying out of the first plan, and that his Lordship should be informed how the departments which would be dispossessed of their present offices would be accommodated.

I am, &c.
(signed) *Alfred Austin*, Secretary.

E. M. Barry, Esq.

Mr. *E. M. Barry* to Mr. *Alfred Austin*.

Sir, 21, Abingdon-street, 8 October 1868.

IN reply to your letter of the 16th ultimo, requesting from me an estimate for carrying into effect the recommendation of the Select Committee of last Session on House of Commons Arrangements, I have to inform you that on the supposition that the two Houses would have Kitchen and Dining Rooms in common, as shown in the plan referred to in the Report of the Committee, my estimate for carrying out that plan is 120,000 *l*. On the supposition that the House of Lords would be left untouched, and new dining room accommodation provided for the House of Commons only, my estimate for carrying out the plan thus modified is 116,500 *l*.

It is necessary, however, for me to say that the adoption of the latter plan would require the provision of new rooms in lieu of the greater part of the Journals Offices, and that I anticipate great difficulty in satisfactorily providing such rooms, and have not included the cost of so doing in my estimate.

With reference to the Report of the Select Committee on Kitchen and Refreshment Rooms, House of Commons, I forward, as requested, plans, and an estimate for carrying into effect the recommendation of that Committee, to convert the Conference Room and adjoining Committee Rooms into Dining Rooms for the two Houses of Parliament, while carrying out in other respects the recommendation of the Select Committee on House of Commons Arrangements, I quite agree with the Kitchen Committee in the preference they have expressed for this plan, and forward, with the estimate and plans, a detailed description of the latter. My estimate for carrying into effect this plan, and providing new Committee Rooms, in lieu of the Conference Room and adjoining Committee Rooms, is 120,000 *l.*

I have placed myself in communication with the chief officers of the departments that will be affected by the carrying out of the first plan, and I do not apprehend any difficulty as to their accommodation, excepting as regards the Journals Offices, which would be displaced by the proposed new Dining Rooms on the ground floor. I have reason to believe that the proposed future position of these offices would be less convenient than it is at present; and that it would therefore be liable to objection. If, however, the plan preferred by the Kitchen and Refreshment Committee Room be carried out, there would be no interference with the Journals Offices, excepting as regards six dark store-rooms, for which ample substitutes would be provided. In order to provide the requisite kitchen and offices, it will be necessary to appropriate three rooms on the ground floor now occupied by Dr. Percy. Suitable accommodation can be allotted to Dr. Percy from the rooms now used as offices to the Peers' Refreshment Room. It would, however, in my opinion, be very desirable that the officer in charge of the ventilation of the building should occupy the central offices originally intended for him on the East side of the Boiler Court.

I am, &c.
(signed) *Edward M. Barry.*

Alfred Austin, Esq.

DESCRIPTION of a PLAN for Converting the Conference Room and adjoining Committee Rooms into Dining Rooms, with New Kitchens and Offices, for the accommodation of both Houses of Parliament.

THE Dining Rooms would be on the same floor level as the Houses themselves, and the access to them would be direct and convenient. The area of the rooms would, in the case of the House of Commons, greatly exceed the area of the present rooms, being 2,297 square feet against 3,375 square feet; and the height would be 19 feet instead of 16 feet; so that the cubical contents of the new rooms would be 64,125 feet against 36,752 feet—the cubical contents of the present rooms.

The kitchens and offices would be on the ground floor as at present, thus obviating all objection on the score of deficient light, air, and drainage. The approach to the kitchens and offices would be the same as to the present kitchens and offices for the House of Peers' Refreshment Rooms.

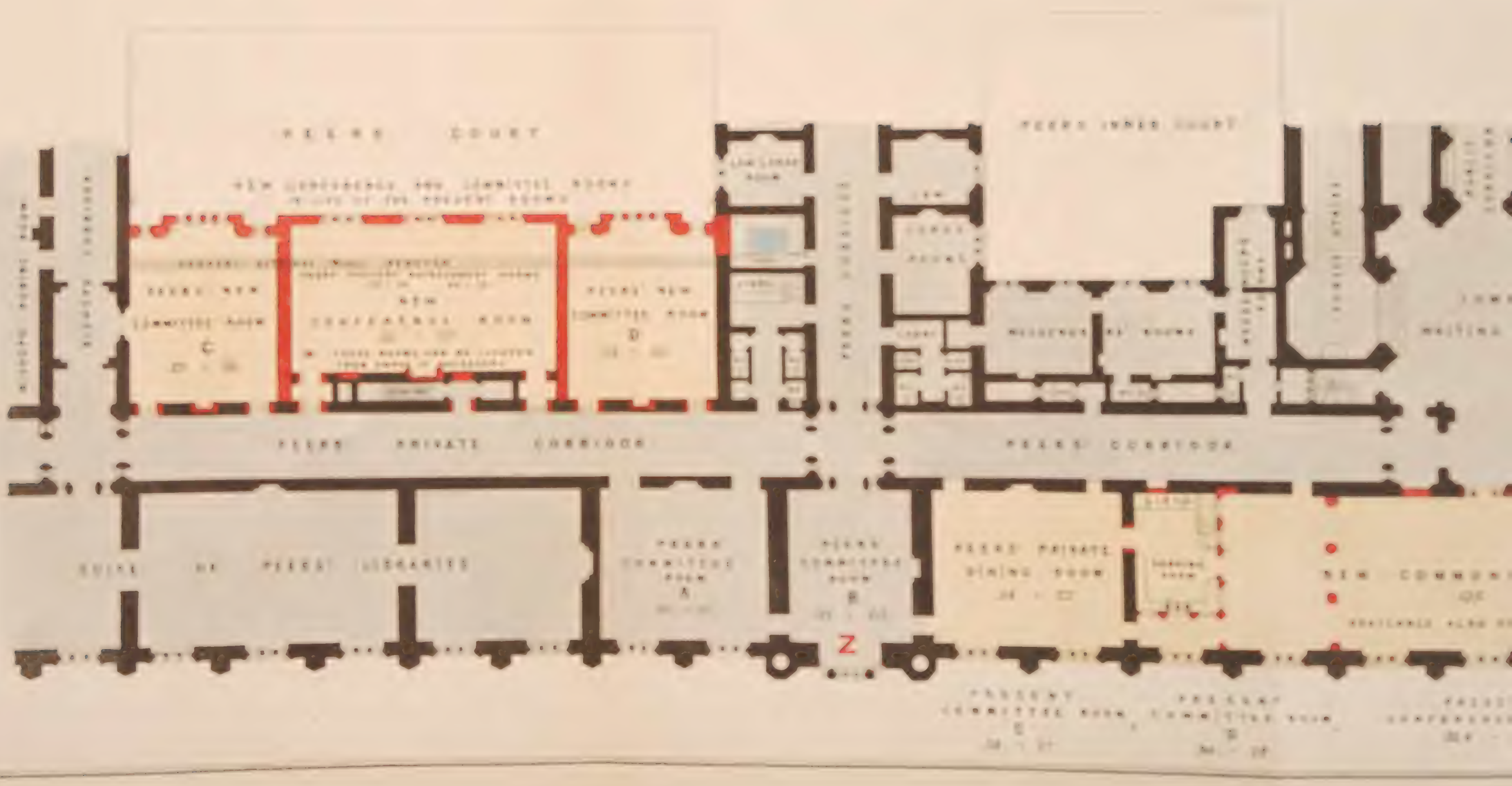
It is proposed to devote to the accommodation of the House of Commons the Conference Room, and the room at each end of it; and to appropriate the second room at the south end of the Conference Room, to the separate and exclusive accommodation of Members of the House of Lords, who might also have liberty of access to the Dining Rooms of the House of Commons. The small Library, marked Y on the plan, would be used as the Tea Room.

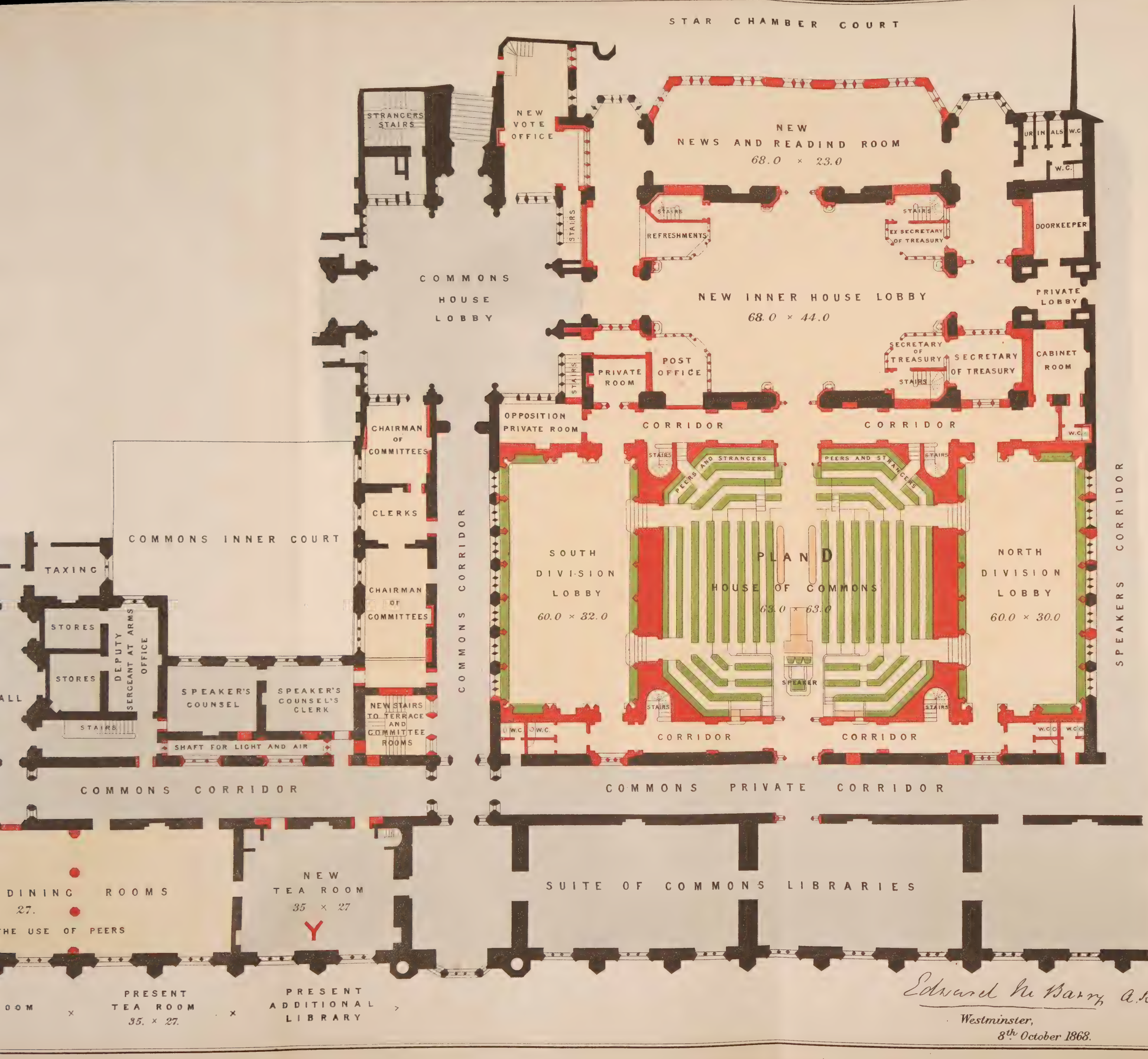
The separate Peers' Dining Room would be somewhat less in area than the present Refreshment Rooms of the House of Lords, but I have reason to believe that it would be sufficient for its purpose, except possibly on a very few occasions in each Session. On such occasions, if the Private Dining Room of the House of Lords should be at any time inconveniently crowded, the adjoining Dining Rooms of the House of Commons would be available for the use of Peers, or additional tables might be temporarily placed in the adjoining Committee Room, marked Z on the plan, by which arrangement the area of the Dining Room would be doubled, so as to exceed the amount of accommodation at present provided.

By

NEW PALACE AT WESTMINSTER.

PLAN OF PRINCIPAL FLOOR.





Edward M. Barry, a.r.a.

Westminster,
8th October 1868.

NEW PALACE AT WE

PROPOSED NEW DINING-

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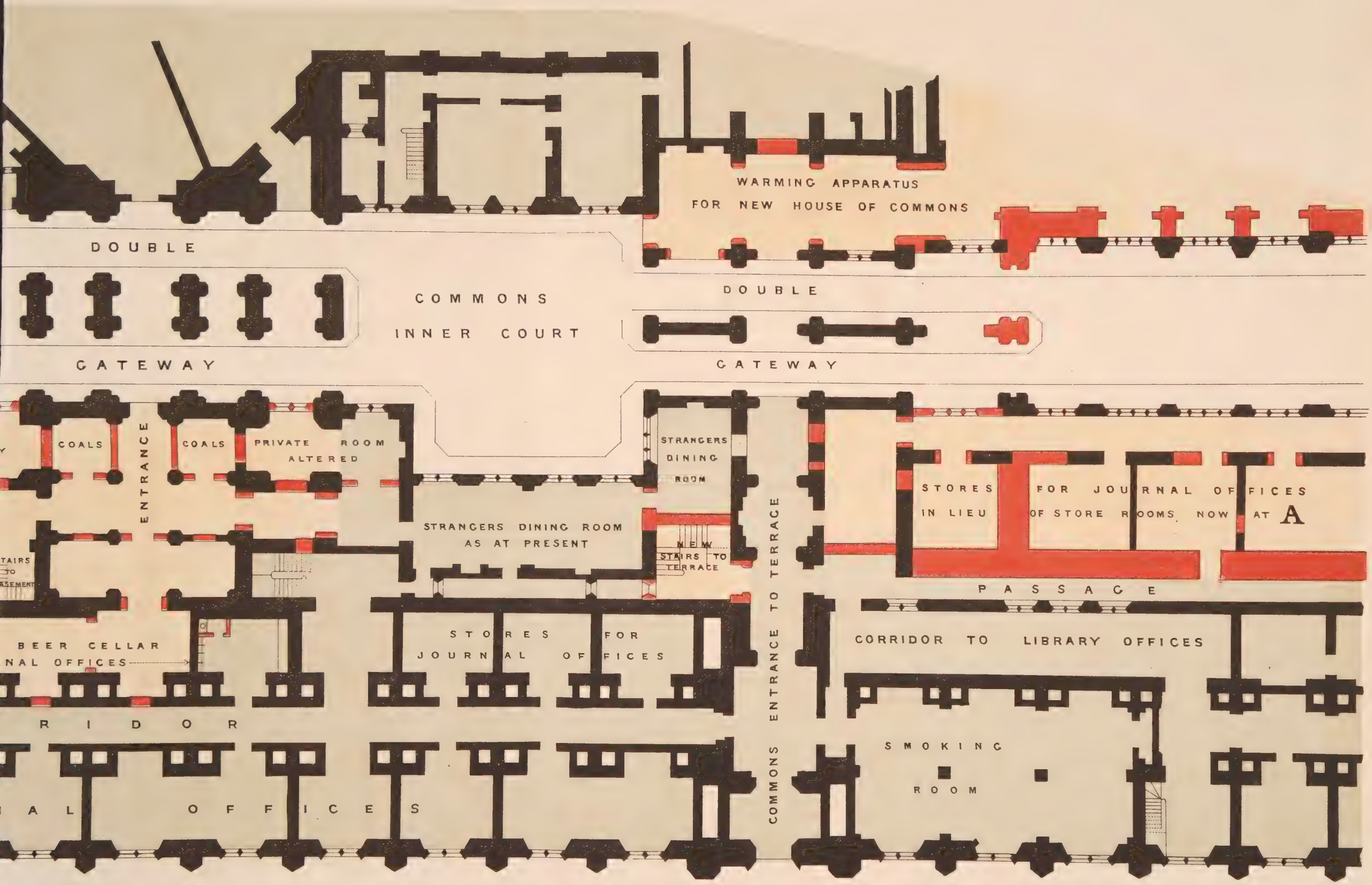
STMINSTER.

ROOMS.



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Edward M. Barry, a.R.a.

Westminster,
8th October 1868.

By the arrangement proposed, the present Refreshment Rooms of the House of Lords would no longer be required, and the space occupied by them could be devoted to the provision of new rooms in lieu of the Conference Room and the two Committee Rooms of the House of Lords, which would be used as dining rooms; the accompanying plan shows three rooms on the site of the Refreshment Rooms, 50′ × 28′ — 33′ × 28′ and 33′ × 28′ respectively, the dimensions of the present Conference and Committee Rooms being 51′ × 27′ — 34′ × 27′ and 34′ × 26′.

When a plan for new dining rooms on a similar principle to that now under consideration was brought under the notice of a Committee of the House of Lords, their Lordships, while objecting to it, on the ground of the inconvenience of giving up the Conference Room and two Committee Rooms, expressed themselves in favour of a well-considered plan for concentrating the Refreshment Departments of the two Houses, which should avoid the inconvenience referred to. By the plan now proposed, adequate substitutes are provided for all the rooms affected by the proposed arrangement, and Members of the House of Lords would share in all the advantages consequent thereon, without being called upon to reduce the number of their Committee Rooms.

(signed) *Edward M. Barry.*

21, Abingdon-street, 8 October 1868.

NEW PALACE OF WESTMINSTER.

COPY of CORRESPONDENCE between the First Commissioner of Works and *Edward M. Barry*, Esq., respecting proposed Arrangements for the Two HOUSES of PARLIAMENT, together with the PLANS relating thereto.

(*Mr. Layard.*)

Ordered, by The House of Commons, *to be Printed*, 19 *April* 1869.

[*Price* 2 *s.*]

154.

Under 2 *oz.*

ROYAL SOCIETY (METEOROLOGICAL COMMITTEE).

RETURN to an Order of the Honourable The House of Commons, dated 28 May 1869;—*for*,

COPY "of LETTER addressed to the BOARD of TRADE by the METEOROLOGICAL COMMITTEE appointed by the ROYAL SOCIETY, at the request of the GOVERNMENT, on the subject of the relations of that COMMITTEE with the GOVERNMENT."

Board of Trade,
1 June 1869.

T. H. FARRER.

(M. 3611.)

LETTER addressed to the Board of Trade by the Meteorological Committee of the Royal Society.

Meteorological Office, 2, Parliament-street,
London, S.W., 22 April 1869.

Sir,

INASMUCH as some misconception in the public mind appears to have arisen with reference to the relations of this office to the Royal Society on the one hand, and to the Board of Trade on the other, I am instructed by the Committee to address a letter to you, with the view of placing on record the leading facts connected with the original establishment of the office by the Government, and its present management by the Meteorological Committee of the Royal Society.

In the year 1853 the question of establishing a uniform system of meteorological observations on land under Government auspices was first mooted, and it originated (at the suggestion of Sir J. Burgoyne) between the Government of this country and the United States.

The latter desired to include in the scheme, observations at sea, a subject on which Lieutenant Maury had been for some time successfully engaged, with the view of ascertaining the most advantageous routes for making ocean passages; and the United States Government suggested that the different maritime nations should be invited to join in the proposal.

The Government submitted the question to the Royal Society, and it was decided in concert with America to postpone for the present the attempt to reduce to a uniform system the land observations then making by the different nations on the continent of Europe.

Subsequently, in 1853, a conference of the maritime nations, known as the Brussels Conference, met at Brussels, and it was there decided that, owing to the great want of uniformity of scales and instruments, it would be impossible, until this difficulty was got over, to undertake one of the objects, viz., the land meteorology; but it was strongly recommended at once to remove the difficulty.

At this conference it was resolved that a uniform scheme should be adopted for the prosecution of the study of marine meteorology.

Out of this conference resulted, in 1855, the Meteorological Department of the Board of Trade, which was established by Mr. Cardwell, and placed under the direction of Admiral FitzRoy; and the Royal Society were asked to give advice as to the branches of meteorology to which the department should direct its attention. Their suggestions will be found at page 5 of the Report of a Government Committee which sat to inquire into the whole subject in the year 1866, and they related chiefly to ocean meteorology, and to observations at certain foreign outlying stations where we had military garrisons.

Thus it will be seen, that a meteorological service under the auspices and in the pay of Government, has been in existence since 1855; and its annual cost during the first 10 years, varied between about 3,000 *l.* and 7,000 *l.*

With the advice given by the Royal Society in 1855 may be said to have ended its connexion with the undertaking, until the death of Admiral FitzRoy 10 years later.

In the meantime, Admiral FitzRoy had commenced the duties of the department, issued vast numbers of instruments to ships of war and merchant vessels, and worked for some years in concert with Lieutenant Maury.

An enormous amount of data, much of it of great value, was accumulated during these years; but the work of reduction and discussion of these materials, was very far from keeping pace with their collection, so that not much was effected in the way of constructing practical physical charts for the use of seamen, which, indeed, could scarcely have been expected from the department as it was then constituted.

However, for some years before Admiral FitzRoy's death, his attention, and that of his department, appears to have been gradually diverted to a wholly different branch of meteorology, viz., the prognostication of weather, and probably fearing a still greater accumulation of ocean data than the department could deal with, he checked to a great extent, the collection of materials, and turned his own attention mainly, and almost exclusively, to the forecasting of storms.

To enable the office to carry out these new views, barometers, &c., were placed at numerous stations round the coasts of the United Kingdom, and observations telegraphed from them to the central office in London, whence the warnings were then issued.

It is only proper to say, that so far as is known, the grounds on which these predictions were founded, were not reduced to rules, at least none have been left on record; though, of course, the superintendent was guided by some principles which he communicated to his deputy when he was unable personally to attend to this special line of duty.

It is only correct also to state, that there was no kind of supervision over the observers on the coasts, or over the position and condition of the instruments. Yet under all these disadvantages, the storm warnings and weather forecasts became most popular among the seafaring population, and abundance of testimony has been advanced as to its value in the saving of life and property.

It appears from the foregoing, that the office was originally under the control of one individual, and although the department of the Government under which it was placed, viz., the Board of Trade, appeared to have entertained doubts as to whether the system pursued was that most to be desired, they do not seem to have felt themselves justified in interfering with the action of the officer at its head, nor did they do so, beyond again consulting the Royal Society on the subject in 1863.

In their reply, the President and Council stated that they considered the objects for which the institution had been established in 1855 were still as important in 1863 as they had been at the former period. Things, however, remained as they were for ten years, when, on the death of Admiral FitzRoy in 1865, the Board of Trade again put themselves in communication with the Royal Society, on the subject of a reconstruction of the department should such a step appear necessary.

The result of this communication was the appointment of a committee of three gentlemen, at the suggestion of the Board of Trade. These gentlemen were nominated respectively by the *Board of Trade*, the *Admiralty*, and the *Royal Society*, and they conducted a searching examination into the working of the office, and presented their report to Parliament in 1866.

The recommendations contained in the report were, briefly:—

I. The resumption of the collection of Ocean Statistics.

II. The issue of Storm Warnings on an improved principle.

III. The establishment of fixed Meteorological Observatories, furnished with self-recording instruments, at convenient stations round the coasts, with the

the view of joining in the general investigation of Land Meteorology, in concert with the continental nations of Europe.*

IV. The placing the office under efficient scientific supervision.

The recommendations contained in this report were approved by the Government, and the Royal Society were requested to undertake the management of the office.

The President and Council in their reply consented to accept the trust, and to carry out the recommendations of the Committee of Enquiry, with the exception of No. II., as will be hereinafter explained. The Committee of the Office was then appointed, and it consists of eight gentlemen, Fellows of the Royal Society, and versed in the science of meteorology. The Committee at once proceeded to appoint a competent staff of officers and clerks.

It may seem scarcely necessary to state that the Royal Society further than having, at the request of the Government, nominated the Superintending Committee and retained the right of filling up vacancies in that Committee should such occur, is in no way connected with the Meteorological Office, nor is it in any sense pecuniarily interested in the grant made to it. It should also be stated that the committee give their services gratuitously.

When it is considered that they meet regularly every week, and have frequently additional work connected with the office imposed upon them, and, moreover, that they are all men whose other occupations are constant and unremitting, it will probably be admitted that their position is not one of a merely nominal nature.

No allusion would have been made to these circumstances, were it not that from observations which have appeared in print, it might have been inferred that the facts had been otherwise.

Since the Committee commenced their duties in January 1867, they have steadily pursued the two great objects which they undertook, viz., Ocean and Land Meteorology, and a third, viz. Weather Telegraphy, was soon added to their labours.

When the President and Council of the Royal Society declined to entertain the proposal that the Committee should send out storm warnings, and recommended that that branch should still be conducted, if at all, under the management of the Board of Trade, the issue of these warnings was suspended by the Board of Trade at the end of 1866. The grounds assigned for this refusal were, that the system did not rest on a sound scientific basis, and that accordingly, until such had been established, the issue of the warnings could not be undertaken by a strictly scientific body.

The public demand for the information was, however, so strongly expressed and reiterated in Parliament, that the Committee consented, at the request of the Board of Trade, to modify their views so far as to give notice, by telegram, of the actual state of the weather in any one part of the coast, to other parts.

Before this system could be established, it was necessary that a thorough examination into the condition and position of the reporting stations should be carried out, and they were all inspected in the course of the autumn of 1867.

The present system was commenced in January 1868.

At the present time, after a lapse of two years from their taking charge of the office, they have been led by a careful investigation of facts, to commence the laying down of rules, by which approaching storms may be anticipated.

It will not be here attempted to give more than a very brief account of the progress which the Committee have made since they entered upon their duties.

In regard to ocean meteorology, the issue of instruments has been resumed, and every effort has been made to enlist the services of the most intelligent commanders of merchant ships. Many of our leading steamship companies have consented

* *Note.*—Almost all of these countries, viz.: France, Prussia, Austria, Russia, Holland, Belgium, Sweden, Norway, Italy, Switzerland, and Turkey have possessed, many of them for a long time, establishments of a somewhat similar character, to which those of this country, from its geographical position and its exceptional climate, would prove a most valuable addition, and would afford means for a thorough investigation of the laws which govern the winds and other atmospherical phenomena, a subject of such vital importance, not only to the seaman, but to every other class of the population of these islands.

consented to co-operate in the work of collection. By these means valuable observations are being obtained over areas for which but little information previously existed. The vast arrears of registers existing in the office are also in process of discussion with a view to the construction of physical charts, and it is in contemplation to produce such charts exhibiting the various meteorological phenomena for each month, and for each square degree over the entire surface of the sea, should such minuteness be found desirable.

The materials collected by Admiral FitzRoy have already contributed towards the construction of the pilot charts for the Atlantic ocean, lately published by the Admiralty, the importance of which to seamen cannot be overrated.

A similar series of charts for the Indian and Pacific oceans are in process of compilation, and the data already collected, or in process of collection by the office, continue to be furnished to the Admiralty for embodiment in these publications.

In regard to land meteorology, seven observatories, fitted with the most improved self-recording instruments for the registry of barometrical pressure, temperature, moisture, and of wind, have been established at convenient points, viz.: two in Scotland, at the Universities of Aberdeen and Glasgow; two in Ireland, at the observatory of Armagh, and on the Island of Valencia; and three in England, at the College of Stonyhurst; the Royal Polytechnic Institution of Cornwall at Falmouth, and, as the Central and Normal Observatory, the Observatory of the British Association at Kew, where the records from all the other observatories are examined before being sent on to the central office in London for discussion.

These observatories have been for some months in working order, and the discussion of the materials furnished by them is now being commenced.

As regards the communication of telegraphic weather intelligence, daily telegraphic messages are received from 17 British coast stations, and from 13 Continental stations, containing reports of the instrumental readings and of the state of the weather; and, in addition, afternoon reports are transmitted from six stations.

From these materials a daily weather chart is constructed, and telegraphic information of the state of the weather as it exists is sent, whenever a serious disturbance is reported, to 100 stations on the coasts of these islands, and also to the entire coast of the continent between Norway and Spain (in return for the daily intelligence received from these countries).

It will be seen from the foregoing, that the system of weather telegraphy is most intimately connected with the observation of land meteorology conducted by the Committee, and that the one could not be given without possessing accurate knowledge of the other.

The entire work of the office is of a strictly national character, and such as is conducted in other countries under the auspices of the respective governments.

The whole of the funds by means of which it is carried on are supplied by Parliament. It could not be expected that operations of so comprehensive a nature, and of purely national interest, would be conducted by any private society.

I have, &c.

T. H. Farrer, Esq.
Secretary, Board of Trade.

(signed) *Robert H. Scott,*
Director.

ROYAL SOCIETY
(METEOROLOGICAL COMMITTEE).

COPY of LETTER addressed to the BOARD of TRADE by the METEOROLOGICAL COMMITTEE appointed by the ROYAL SOCIETY, at the request of the GOVERNMENT, on the subject of the relations of that COMMITTEE with the GOVERNMENT.

(*Mr. Playfair.*)

Ordered, by The House of Commons, *to be Printed,*
4 *June* 1869.

246.

Under 1 *oz.*

TRANSITS OF VENUS (1874 AND 1882).

RETURN to an Order of the Honourable The House of Commons, dated 7 July 1869;—*for*,

COPY "of CORRESPONDENCE between the Treasury, the Admiralty, and the Astronomer Royal, respecting the Arrangements to be made for Observing the TRANSITS of VENUS, which will take place in the Years 1874 and 1882."

Admiralty, 6 July 1869.

JOHN HENRY BRIGGS, Chief Clerk.

— No. 1.—

The Astronomer Royal to the Hydrographer of the Admiralty.

Royal Observatory, Greenwich, S.E., 10 October 1868.

My dear Sir,

IN considering how best to take advantage of the transits of Venus in 1874 and 1882, I am a little disheartened by the very obscure information which reaches me regarding the climate of the Southern Continent, which, so far as it tells anything, only seems to show that the land may be unapproachable in the beginning of December. If it be so, we must rely on observations taken at places whose absolute longitudes are known, and 1874 will be as good as 1882.

I have therefore been looking at the globe with reference to both transits, and I find that the places of observation must be the following:—

1874.—ENTRY OF VENUS ON THE SUN.

Otaheite (not very good) Owhyhee Aleutian Islands	opposed to	Mauritius. Kerguelen's Island. Crozet Islands.

1874.—DEPARTURE OF VENUS FROM THE SUN.

Many Russian Stations	opposed to	Auckland Islands. Canterbury, New Zealand. Wellington, New Zealand. Sydney (not very good).

1882.—ENTRY OF VENUS ON THE SUN.

Kerguelen's Island Crozet Islands Mauritius Cape of Good Hope (not very good)	opposed to	Toronto. The American seaboard—New Brunswick to Charleston. Bermuda.

1882.—DEPARTURE OF VENUS FROM THE SUN.

Sydney Melbourne Wellington, New Zealand Canterbury, New Zealand	opposed to	Antigua and Jamaica, and Nassau. New Brunswick to Charleston. Bermuda.

Now, can we hope to have observers at any of these places, and can we hope under any contingencies to determine very well their absolute longitudes? if

the observations of the transits could be made, the longitudes might be determined afterwards. The longitudes must be within a very few seconds of time.

The most important places are those which are repeated in the lists above, namely :—

Mauritius.	Canterbury.
Kerguelen's Island.	Wellington.
Crozet Islands.	Bermuda.

Owhyhee also appears indispensable. The Russians will take care of the Russian stations, and the Americans of the American stations.

Will you consider all this, and tell me what you think?

I am, &c.

Captain G. H. Richards, R.N. (signed) *G. B. Airy.*
&c. &c. &c.

— No. 2. —

Hydrographer of the Admiralty to the Astronomer Royal.

Hydrographic Department, Admiralty,
My dear Sir, 13 October 1868.

In reply to your letter of the 10th on the subject of the transits of Venus in 1874 and 1882, there is no doubt in my mind but that to ensure a station in a high southern latitude for the 6th of December, it would be absolutely necessary to make a previous reconnaissance, and for a ship to winter at the spot selected, in 1881–2 (and probably the reconnaissance would have to be made not later than 1880), as much earlier as circumstances will admit.

If you adopt the plan explained in your letter, of trusting to stations whose longitudes have been, or may be, absolutely determined, you deprive the subject of its only difficulties.

I have consulted with Sir Alexander Milne, and he entirely agrees with me that in regard to visiting the positions named by you, no difficulty can exist, so far as the Admiralty are concerned.

It will be time to enter into detail when your programme is prepared.

In regard to longitudes, Sydney, Melbourne, Cape of Good Hope, and Madras are, I believe, the only positions which are absolutely determined as regards longitude. I am of opinion that very accurate meridian distances may be carried to and from the places named by you; many of them, of course, such as Mauritius, the New Zealand Stations, and Bermuda, are susceptible of being absolutely determined without any inconvenience.

I am, &c.
(signed) *George Henry Richards,*
The Astronomer Royal. Hydrographer.

— No. 3. —

The Astronomer Royal to the Hydrographer of the Admiralty.

Royal Observatory, Greenwich, S.E.,
My dear Sir, 6 November 1868.

I have been looking carefully at the transits of Venus 1874 and 1882, especially with a view to the minimum of preparation that will be required, and have drawn up the necessary maps, &c., and am now able to place before you a definite statement of what is necessary.

There are two methods of making transits of Venus available: (I.) by observation of the absolute local times of ingress and of egress at stations whose absolute longitudes are accurately known; (II.) by observation of the intervals between times of ingress and egress at the same station, without knowledge of absolute

absolute times or of absolute longitude. From a peculiarity in the course of the planet, method (I.) can be used both in 1874 and 1882; but method (II.) in 1882 only.

Every phenomenon (ingress or egress) must be observed at the stations or systems of stations; at one where the sun is at a moderate elevation above the horizon, and rising; at the other, where the sun is at a moderate elevation above the horizon, and sinking.

This being premised, I can proceed to details:—

TRANSIT of 1874. December 8.

Method (I.) only applicable.

Ingress of Venus
- Sun descending:—Owhyhee or Woahoo is indispensable. The next station in value is the French Marquesas, but it is bad.
- Sun ascending:—Mauritius is indispensable; Rodriguez would be better, but I mention Mauritius because it will occur again.

Egress of Venus
- Sun descending:—Sydney and Melbourne, which have observatories, will be best; Canterbury and Wellington are abstractedly superior, but their longitudes must be determined.
- Sun ascending:—There are numerous Russian stations on which we may rely; also Constantinople and Athens; Alexandria also is excellent, and (viewing the severity of the Russian climate) it is to be considered.

TRANSIT of 1882. December 6.

Method (I.)

Ingress of Venus
- Sun descending:—Mauritius indispensable, Bourbon abstractedly would be better; Cape of Good Hope useful.
- Sun ascending:—The whole range of the American seaboard States, including the Canadas, from Newfoundland to New Orleans, all excellent. Bermuda good, but unnecessary.

Egress of Venus
- Sun descending:—The American States (except Newfoundland) and Bermuda, as above-mentioned. Rio de Janeiro useful.
- Sun ascending:—Sydney and Melbourne excellent.

Method (II.)

Ingress of Venus
- Sun descending:—The only possible stations are on the Southern Continent; one is at 7-hours east longitude, between Repulse Bay and Sabrina Land, as near the South Pole as can be reached. The other is in South Victoria; not advisable, unless latitude 72° south can be reached; in that case it would be preferable to the 7-hour station.
- Sun ascending:—American stations and Bermuda, as above.

Egress of Venus
- Sun descending:—American States, except Newfoundland and Bermuda.
- Sun ascending:—Stations on Southern Continent as above.

It appears, therefore, that the following preparatory steps are required:

(A.) To determine *accurately* the longitudes of Woahoo and Mauritius. I imagine that the least expensive plan would be, to station an observer at each; in order to observe transits of the moon for a year. That year may be taken as early as you think fit; or it might close about the time (1874) of the first transit; but the operation ought not to be deferred longer.

(B.) To determine *accurately* the longitude of Alexandria. I know not whether there is any English officer resident at Alexandria who could determine time accurately at the arrival of the steamers; if there is, perhaps the transmission of chronometers would be the cheapest process.

(C.) To reconnoitre the Southern Continent at the 7-hour Station, and along South Victoria; not for determination of accurate longitude, but to ascertain

whether observations can be made on a low sun, nearly below the pole at the 7-hour Station, and exactly below the pole at the South Victoria Station, on December 6. I must leave to you all details of this operation.

I am, &c.
(signed) *G. B. Airy.*

Captain G. H. Richards, R.N.
&c. &c. &c.

— No 4. —

Hydrographer of the Admiralty to the Astronomer Royal.

Hydrographic Department, Admiralty,
3 December 1868.

My dear Sir,

I HAVE been in communication with their Lordships on the subject of the Transits of Venus, which will occur respectively on the 8th December 1874, and the 6th December 1882; and having placed before them your letter of the 10th October, pointing out the preparatory steps which it will be desirable to take beforehand, their Lordships have desired that the following points shall be brought under their consideration in the early part of the year 1873.

1st. The means to be taken for carrying out a year's observations for absolute longitudes at the Mauritius and at Oahu, commencing at the close of that year, and terminating with the occurrence of the first transit in December 1874.

2nd. The consideration of the necessity for sending an expedition to the Antarctic regions to observe the transit of 1882.

There are, as you are aware, many difficulties to be anticipated in this latter project. In the first place, nothing is known as to the possibility of approaching the land in the meridian of 7-hours E. longitude; the little, indeed, that is known is against such a presumption, and under any circumstances, no attempts have hitherto succeeded in penetrating far south until about the middle of the month of January.

In the second position named in your letter of November 6th, viz., a high latitude in Victoria land, Sir James Ross penetrated to about 77° S. in the middle of January; and after some difficulty landed on Possession Island in 72° S., but no place was found where a vessel could winter, or even anchor. Therefore, it appears to me that the only feasible plan would be to convey an astronomical party to this or some neighbouring island in January 1882, fully equipped to pass a winter there, the vessel returning to Tasmania or New Zealand until the following year; but whether, considering the results which are to be obtained by the absolute longitude method, such an expedition would be justifiable, it will be for you, I think, when the time arrives for reconsidering the question, to put their Lordships in full possession of your views.

It will also, I think, be well to consider, before that period arrives, who are to be the observers to be sent respectively to Mauritius and Oahu, as, if naval or military officers are selected, some previous training would be necessary at the Royal Observatory.

The question of determining the absolute longitude of Alexandria might be considered at the present moment, or at any convenient time, as no special preparation seems necessary. There is a surveying vessel in the Mediterranean, and Sir James Anderson informs me that the telegraph cable between Malta and Alexandria will be at your disposal for the measurement between those two places at any time.

I am, &c.
(signed) *Geo. Henry Richards.*

The Astronomer Royal,
Royal Observatory, Greenwich.

— No. 5. —

Hydrographer of the Admiralty to the Secretary of the Admiralty.

Hydrographic Department, Admiralty,
25 November 1868.

In reference to former communications from the Astronomer Royal on the subject of the transits of Venus over the sun's disc, which will occur respectively on the 8th December 1874 and on the 6th December 1882, I have now received from Mr. Airy, and submit for the Board's consideration, a definite statement of the steps he considers necessary to be undertaken in order that these astronomical phenomena may be duly observed by the astronomers of this country, which are as follows; viz. :—

1st. For the transit of 1874, the ingress and egress of the planet must be observed at Oahu (one of the Sandwich Isles), at Mauritius, at Sydney, and Melbourne, and at Alexandria.

2nd. This will involve the necessity of determining the absolute longitudes of Oahu, Mauritius, and Alexandria. Sydney and Melbourne having fixed observatories, this element is already determined.

3rd. It will be necessary to station observers at Oahu and Mauritius to observe transits of the moon for a year, and they should leave this country during 1873, in order that the observations should be commenced in December of that year, and concluded coincident with the occurrence of the transit in December 1874.

Alexandria may be determined probably with the aid of the telegraph wires and chronometers; and it is probable that, with the assistance of the surveying vessel in the Mediterranean, this may be accomplished by the joint action of the Astronomer Royal and the Hydrographer.

In regard to the determination of the longitudes of the Mauritius and Oahu, I submit that the question be again brought under their Lordships' considera tion by the Hydrographer in the early part of 1873.

The stations alluded to above, and the same methods of observations, will be available to a certain extent in the transit of 1882; but to obtain the most advantageous astronomical results it will be necessary to observe the interval between the times of ingress and egress at some station in a high southern latitude where the knowledge of the absolute longitude is not necessary.

The Astronomer Royal mentions the only two possible positions on the Southern Continent which will be available, viz., either in the longitude of 105° E., as near the pole as can be got (about 1,800 miles S.W. of Tasmania); or in the longitude of 170° E., about the point landed on by Ross, the same distance south of the southern end of New Zealand.

To reach either of these points would render necessary an Antarctic expedition involving very deliberate consideration some time beforehand, into the detail of which I need not enter until their Lordships have decided on its adoption; but a few remarks will make clear the general conditions which such an expedition would involve.

In the first place, we know of no place on the Antarctic continent where ships could winter, although we do know of a spot (which will be alluded to presently) where a party could winter. In the second place, the transit occurs early in December, or before the height of the navigable season, which would be in January. Therefore, on both accounts, it would be necessary to make a previous reconnaissance, making either Tasmania or New Zealand the base of operations; and that a ship should pass the winter, from January 1881, until January 1882, in some suitable position to be found.

Or else it should be decided to land a party, properly equipped and provisioned, in the latter position named by the Astronomer Royal; that is in latitude 72° longitude 170° about, on Possession Island, which was discovered and landed on by Sir James Ross, or possibly on one of the islands southward of it, also discovered by him.

It is more than probable that as the "Erebus" and "Terror," without steam,

reached this position without difficulty, it would be easily attained by a screw steamer leaving New Zealand or Tasmania in December 1881, landing the astronomers and the party with all their equipment where they could winter.

This latter plan would appear a very feasible one, free from risk, and affording a whole year for most interesting researches.

I submit that the whole question be brought under their Lordships' consideration in the early part of 1873, and that if their Lordships approve of this suggestion, the Astronomer Royal be so informed.

(signed) *Geo. Henry Richards.*

— No. 6. —

The Astronomer Royal to the First Lord of the Admiralty.

Royal Observatory, Greenwich, S.E.,
15 February 1869.

Sir,

I HAVE the honour to address to you, in a packet transmitted by book post, copies of a pamphlet on the preparatory arrangements for the observation of the transits of Venus, 1874 and 1882.

As soon as I shall have obtained sufficient information on the expenses requiring early sanction, I propose to have the honour of laying it before you.

I have, &c.
(signed) *G. B. Airy.*

The Right Honourable H. C. E. Childers, M.P.,
First Lord of the Admiralty.

COPY of PAMPHLET enclosed in No. 6.

THE TRANSITS OF VENUS, 1874 AND 1882.

ON THE PREPARATORY ARRANGEMENTS for the OBSERVATION of the TRANSITS,

By *G. B. Airy*, Astronomer Royal,

With Remarks by Captain *Richards*, Captain *Toynbee*, Rear Admiral *Ommanney*, Staff Commander *Davis*, *E. J. Stone*, Esq., and *Warren De la Rue*, Esq.

(Extracted from the Monthly Notices of the Royal Astronomical Society, Vol. xxix., No. 2.)

On the Preparatory Arrangements which will be necessary for efficient Observation of the Transits of Venus in the Years 1874 and 1882. By *George Biddell Airy*, Astronomer Royal.

ON two occasions (*Monthly Notices* 8th May 1857, and 10th June 1864), I have called the attention of the Society to the transits of *Venus* across the sun's disc, which will occur in the years 1874 and 1882; and have pointed out that, for determination of the difference between the sun's parallax and the parallax of *Venus*, the method by observation of the interval in time between ingress and egress at each of two stations at least, on nearly opposite parts of the Earth (on which method, exclusively, reliance was placed in the treatment of the observations of the transit of *Venus* in 1769), fails totally for the transit of 1874, and is embarrassed in 1882 with the difficulty of finding a proper station on the almost unknown Southern Continent.

The publication of M. Le Verrier's new tables of *Venus*, and of Mr. Hind's inferences from them as to the points of the sun's limb at which the ingress and egress will take place in each transit (which inferences I have in part verified), has induced me again to examine the whole subject. And, without giving up the hope of using the observation of interval between ingress and egress at each of two stations in 1882, I have come to the conclusion (from all the information which has reached me) that it will be unsafe to trust exclusively to the chance of securing observations on the Southern Continent; and that, while observations are by all means to be attempted in that manner, it is also very desirable to combine with them observations of the same phenomenon (at one time the ingress, at another time the egress) made at nearly opposite stations whose longitudes

are

are *accurately* known, and recorded in *accurate* local time. This principle being once admitted, the transit of 1874 is, or may be, as good for observations of that class as the transit of 1882; and the selection of localities for the observations must be made with equal care for the two transits.

Mr. Hind's calculations for the points of ingress and egress are contained in a paper in the *Comptes Rendus* of the French Academy for 22nd July 1861. My valued friend has been so much accustomed, in the admirable calculations issued from his office, to describe phenomena as seen in an inverting telescope (a method of exhibition which I could wish entirely to banish), that he has inadvertently given the elements of ingress and egress on that supposition, but without explanation of it. Correcting for this peculiarity, the elements to be used for discussion of observation-stations are, with sufficient approximation, the following:—

Transit of Venus, 8th *December* 1874. *Sun's Declination* 22° 35′ *S.*
Ingress at $14^h\ 0^m$ Greenwich Mean Solar Time.
Position on Sun's Limb 131° from South through East towards North.
Egress at $18^h\ 12^m$ Greenwich Mean Solar Time.
Position on Sun's Limb 160° from South through West towards North.

Transit of Venus, 6th *December* 1882. *Sun's Declination* 22° 44′ *S.*
Ingress at $2^h\ 5^m$ Greenwich Mean Solar Time.
Position on Sun's Limb 35° from South towards East.
Egress at $8^h\ 2^m$ Greenwich Mean Solar Time.
Position on Sun's Limb 66° from South towards West.

With these data, a common terrestrial globe can be adjusted for each place, on the supposition that the sun is vertically above the globe, and therefore that the globe-horizon defines those parts of the earth to which the phase will be visible. If a point be taken on the globe-horizon corresponding to the "Position on Sun's Limb," the terrestrial station thus indicated is that at which parallax has its maximum effect in apparently displacing *Venus* towards the sun's centre; and the opposite station is that where the maximum apparent displacement from the sun's centre occurs. The effect at any other station is proportional to the cosine of its distance, in arc of great circle of the Earth, from the maximum station.

The maps which I attach to this paper have been prepared by taking advantage of the principle which I have described. They do not profess any extreme accuracy, but they will, I trust, be found abundantly accurate for the purpose for which they are prepared. All are on the same scale except the first, whose scale is three-fourths that of the others. It will be remarked that the local elements, which at any station are important, are, first, the "Factor of Parallax," or the cosine of angle above mentioned, on which depends the theoretical value of the observation; second, the "sun's elevation above the horizon," on which the chance of good observation will greatly depend. These are defined upon the maps; for the first, by the station's place among the semicircular curves; and for the second, by the station's place among the parallel lines. A point surrounded by a circle, upon the horizon-line, indicates the place at which the effect of parallax is maximum.

It will be remarked that, in this mode of observing the transit, the ingress is a phenomenon complete in itself, requiring to be observed at nearly opposite sides of the Earth; namely, at one side where it is apparently accelerated by parallax, and at another side where it is apparently retarded by parallax. The two maps corresponding to these two tracts of observation will be placed in the bound volume, face to face. In like manner, the egress is a phenomenon complete in itself, also requiring two districts of observation on nearly opposite sides of the Earth, different from those used for the observation of ingress, and therefore requiring two special maps, and these in like manner will be bound face to face.

I can now proceed to discuss the individual maps with reference to the selection of stations for the observation of the several phenomena.

Transit of Venus, 1874, December 8.

Map No. 1.—Stations for observing the Ingress as Accelerated by Parallax.

Owhyee and the neighbouring islands are excellent. The factor of parallax is about 0·92, and the sun is at nearly two hours' elevation. There is English society at Woahoo. These islands are just within the tropics. For use of this station the absolute longitude must be accurately determined.

At the Marquesas Island the Factor of Parallex is 0·7, and the sun is nearly as high as at Woahoo. Our neighbours across the Channel have, from the time of Louis XIV., taken an honourable lead in scientific enterprise of every class. I trust that we may rely on them for accurate determination of longitude at Marquesas, and for accurate observation of the ingress in 1874.

The desert Aleutian Islands can scarcely be recommended, although the factor 0·8 for the westernmost of them, where the sun is highest, is favourable. But it is very probable that the Russians will soon have established telegraphic communication with the mouth of the Amoor, by which its absolute longitude will be accurately determined; and though the factor is only 0·57, the sun is 15° high, and the station will be valuable.

On the whole, if the British Government will undertake the accurate determination of

longitude of Woahoo, and the careful observation of ingress there in 1874, we may consider that good provision is made for the Accelerated Ingress.

Map No. 2.—Stations for observing the Ingress as Retarded by Parallax.

The best station, as referred to the test of numbers, is Kerguelen's Island, where the factor is 0·91, and the sun is 25° high. This island is emphatically known as "The Island of Desolation." I know not whether its character is so repulsive, or its utility as a zero of longitude so small, as to make our nautical authorities unwilling to determine its longitude, and to station observers there in 1874. If these difficulties are not thought too great, it will be an excellent position. At Crozet's Islands the factor 0·98 is very favourable, but the sun is rather low (10° altitude).

The next stations in order of merit are Rodriguez, Mauritius, and Bourbon. Mauritius possesses this claim, that it will be a fairly good station, though not so good as Bourbon, in 1882; in 1874, as well as in 1882, it has this disadvantage, that the sun will be low. If only one longitude can be determined in this chain of islands, it ought to be that of Mauritius; if two can be determined, they ought to be those of Rodriguez (for 1874) and Bourbon (for 1882).

At Madras and Bombay the factors, 0·47 and 0·44, are small; but the value of either station does not depend entirely on its simple factor, but upon the sum of its factor with the factors at the stations in Map No. 1. These two observatories, with well-known longitudes, will prove very useful stations.

With the assistance which we may hope to receive from the British Government, we may consider the observation of the Retarded Ingress as well secured.

Map No. 3.—Stations for observing the Egress as Accelerated by Parallax.

Excluding from consideration the Southern Continent, as not to be entertained in our thought without the most absolute necessity, the stations in order of merit are the Auckland Islands, Canterbury, Wellington, and Auckland, in New Zealand (factors ranging from 0·83 to 0·77), Norfolk Island (0·66), Melbourne and Sydney (0·6). I omit Chatham Island, where the sun is rather low. The existence of the observatories at Melbourne and Sydney makes the observation of the Accelerated Egress almost secure, although, in confirmation, I should much desire to have one station at least on the New Zealand group.

Map No. 4.—Stations for observing the Egress as Retarded by Parallax.

The stations which are favourable for this observation are almost entirely on Russian and Turkish territories. At none of them is the factor less than 0·84; and we have, therefore, only to consider the elevation of the sun, leaving to the national governments to estimate the facilities or difficulties depending on the locality, the climate, or the season. Any station either to the east or to the west of the Lower Caspian will have the sun well elevated. Omsk, Orsk (whose longitude has been determined with peculiar care), Astrakhan, Erzeroum, Aleppo, Smyrna, and Alexandria, have the sun sufficiently high. At Tobolsk, Perm, Kazan, Kharkov, Odessa, Constantinople, and Athens, the sun will be rather low, and at Moscow it will be on the horizon. We may with the utmost confidence leave the selection of the stations, the determination of longitude, and the observation of the phenomenon, to our Russian friends. One station, however, ought specially to be considered as being, for this purpose, in British hands, namely, Alexandria. It appears not improbable that we may soon have very direct telegraphic communication with Alexandria; but failing this, I trust that no efforts will be wanting to determine accurately its longitude; a longitude which was in the survey of Admiral Smyth, and which always must be, the zero of longitude in the Levant. This being ascertained, Alexandria would probably be the best of all the stations for observation of the Retarded Egress.

Transit of Venus, 1882, December 6.

First, by the Method of Absolute Longitudes.

Map No. 5.—Stations for observing the Ingress as Accelerated by Parallax.

Omitting for the present all allusion to the Southern Continent, it will be seen that the best station is Kerguelen's Island, its factor being 0·98, and the sun's elevation (12°) probably sufficient. This circumstance, in addition to its value, as explained in the discussion of Map No. 2, renders it well worthy of attention. At Crozet's Island the factor is 0·9, and the sun's elevation 23°; abstractedly it is preferable to Kerguelen's Island, but not in quite so great a degree as that in which Kerguelen's Island is superior in Map No. 2. The next in value are Bourbon and Mauritius, with factor about 0·78, the sun being higher at Bourbon. On comparing these qualifications with those remarked under Map No. 2, the reasons will be evident for my recommendation that either the longitude of Mauritius or the longitudes of Bourbon and Rodriguez should be determined.

At the Cape of Good Hope the factor is about 0·62, and the observation there will be valuable.

The satisfactory observation of the Accelerated Ingress requires, however, some longitude-determinations.

MAP No. 6.—Stations for observing the Ingress as Retarded by Parallax.

Every city near the seaboard of the United States of America, and every important city of Canada, commands this phenomenon most favourably. The lowest factor is 0·95, and the smallest elevation of the sun is 12°. The utmost reliance may be placed on the zeal of our American brethren for observing the ingress. As great facility exists for determining the absolute longitude of any place within the range of American telegraphs (Harvard having been accurately referred to Greenwich), it is unnecessary to look further. Otherwise it might be remarked that Bermuda, Jamaica, and the West Indian Islands, and both sides of Central America, are excellent stations, but requiring determinations of longitude.

MAP No. 7.—Stations for observing the Egress as Accelerated by Parallax.

All the American stations mentioned in the last paragraph, from Halifax to New Orleans, and Bermuda and the West Indian Islands, are well situated for this observation, the factors being near 0·85, and the sun's altitude varying from 4° at Halifax to 32° at New Orleans and Jamaica. The coast of South America also is favourable, from its union with the isthmus to the harbour of Rio de Janeiro. It is believed that efforts have been made for exact determination, in a nautical sense, of the longitude of Rio; it may now be desirable to give to that longitude the utmost accuracy.

MAP No. 8.—Stations for observing the Egress as Retarded by Parallax.

Omitting for the present the Southern Continent, this observation will be amply secured by the observatories of Sydney and Melbourne, where the factor is 0·96, and the sun's elevation 12° to 14°. If, however, the longitude of the New Zealand stations can be ascertained, they, with factor 0·8 and sun's elevation 32°, will form a valuable addition.

Second, by the Method of interval between Ingress and Egress.

On comparing Maps Nos. 6 and 7, it will be seen that the North American localities supply, in a manner which leaves nothing to be desired, the demand for stations, at which the ingress is retarded and the egress accelerated, or the whole interval is diminished, by parallax.

With these, it is necessary to combine one or more stations, at which the ingress is accelerated and the egress retarded, or the whole interval is increased, by parallax. On examining Maps Nos. 5 and 8, it will be seen that the only possible method of responding to this demand is by the selection of stations on the Antarctic Continent, in which the observation will be made when the sun is nearly below the Pole.

In so far as the coast of the Antarctic Continent follows nearly a parallel of latitude, the best position for a station is at 7^h east longitude. The factors would be, for ingress and egress, about 0·95 and 0·68. The sun would be, at each station, about three hours from the sub-polar meridian. But its elevation above the horizon would scarcely exceed 4°, and any alteration of the longitude, with the view of increasing the elevation at one phenomenon, would diminish it at the other.

Advantage may, however, be taken of the deep southern inlet discovered by Sir James Ross, to the western side of which is given the name of South Victoria. If a station can be established in latitude exceeding 72° S., it will be preferable, for observation of ingress, to the station in 7^h longitude, and if the expedition could be pushed on to an observing place in the neighbourhood of Mounts Erebus and Terror, that position would be greatly preferable. For observation of egress, it is manifestly far superior; the sun's altitude being about 27°. The factors for the two observations are respectively about 0·78 and 0·58.

The decision on the choice to be made between these two stations, and the judgment on the facility, or even the possibility, of using either of them, must rest with persons who have had some familiarity with Polar, and if possible with South Polar voyages.

In partial correction of some small inaccuracies in these remarks, it may be observed that,—

The ingress, as viewed from the earth's centre, is always a few minutes earlier, and the egress always a few minutes later, than is supposed in the maps.

As affected by parallax, the phenomenon is always retarded with ascending sun and accelerated with descending sun.

As referred to apparent solar time, the phenomena are slightly retarded.

The only phenomena which are critically affected by these corrections are those of Maps Nos. 4 and 5, and in both the circumstances of solar elevation are rendered more favourable.

There may be a cause of uncertainty in the observation-elements on which M. Le Verrier's Tables of *Venus* are founded, arising from the unsatisfactory form in which the observations of the planet were recorded in Bradley's time. At a critical inferior conjunction when *Venus* was apparently a very large body, very deeply hollowed, it is impossible to say whether the limb was observed, or whether an attempt was made to observe the centre. In my reductions of the planetary observations I inclined to the former idea. Subsequently M. Le Verrier adopted the latter. The tables are, at this time, very accurate; and it may prove that M. Le Verrier's interpretation was correct.

Any uncertainty, however, of this kind, makes it desirable to avoid observations of the ingress or egress very near to the horizon.

It appears, from this discussion, that the absolute longitudes required for the observation of the two transits, the determination of which may be considered as a duty of the British nation, are the following:—

Alexandria.
Stations in New Zealand.
Woahoo, or some other point in the Sandwich Islands.
Kerguelen's Island, or Crozet's Islands (Kerguelen's being slightly preferable).
Mauritius, or the two islands Rodriguez and Bourbon (which would be preferable).

I now proceed to remark on the methods by which these longitudes may be determined.

For Alexandria,—we may probably rely on the transmission of Greenwich time, either by sending numerous chronometers in the steam ships which make regular voyages between the British ports and Alexandria, or by galvanic signals through the desired direct telegraph communication. The saving of time and labour by the latter method would be so great that, if there is any reasonable prospect of soon forming that communication, it would be best to wait for it. The local time may be obtained by instruments sent for the purpose, either a transit instrument for meridian transits, or an altazimuth for extra-meridian zenith distances. Where the labour of computation, as for a limited object, is not worth taking into account, I prefer the altazimuth. The largest portable instrument, with circles about 16-inches in diameter, and with four microscopes for reading the vertical circle (two microscopes being insufficient for eliminating the effect of oval form) should be employed; an instrument of this class now forms part of the equipment of the Royal Observatory of Greenwich. In every expedition, however, I would send instruments of both classes. It is unnecessary to particularise clocks and chronometers, &c.

For the New Zealand stations, I should trust that connexion by chronometers might be made with Sydney and Melbourne.

For Woahoo and Kerguelen's Island, the circumstances are different. The expense of sending special steamers with chronometers, even from San Francisco to Woahoo, and from the Cape of Good Hope to Kerguelen's Island, would be very great. Here, I think, we must make use of the motions of the moon. If a hundred transits of the moon be taken, equally divided between the first and second limb, the probable error of the resulting longitude will be about three times the probable error of a single transit of a star; or, with liberal allowance for every source of error, it will be below 1^s of time; this accuracy would suffice. A hundred transits might be obtained in a year with the transit instrument, or perhaps in three months by vertical transits with the altazimuth. Through this time a competent observer must be stationed at the one point. No transmission of chronometers would be required.

The same method, I think, must be adopted for Mauritius, or for Rodriguez and Bourbon.

It would be a question for the naval authorities whether the determinations of absolute longitude should be preliminary to the observation of the transits of *Venus*, or whether they should be made about the same time, requiring only one visit of the observer or observers to the station.

For British observation of the transit of *Venus* in 1874, the number of sets of instruments required (each set including a transit instrument, an altazimuth, a clock, several chronometers, several telescopes, one or two observing tents) would be five (Woahoo, Kerguelen's Island, Rodriguez or Mauritius, Auckland, Alexandria). For the transit in 1882, the number required would be three (Kerguelen's Island, Bourbon or Mauritius, Auckland). I suppose here that the Canadian observatories are already sufficiently equipped. The instruments of the 1874 expedition, thus set free from two stations, would be required at that of which I next speak.

For selections of an observing station on the Southern Continent, I think that it will be best to examine carefully the accounts given by Sir James Ross and Commodore Wilkes, and their officers, and to decide on the absolute and relative probability of gaining access to the coast on 6th December in the neighbourhood of the Antarctic Circle at 7^h east longitude, or at a much higher latitude on South Victoria; and also to judge on the possible difference in the transparency of the atmosphere. The choice in station being made, I would not recommend any reconnoissance, but I would propose that an expedition should go direct to the selected point in good time for the observation of the phenomenon. The season is early for south-polar expeditions, and any difficulties produced by ice would probably diminish every day. A station being gained, all that is necessary in the way of subsidiary observation is, a few days' observation to give clock rate; then the clock times only of the two phenomena will furnish all that is required.

The first action to be undertaken by the Government is, to procure the stock of instruments; and this ought to be done without delay. An observing plant like that above mentioned is not to be obtained in haste; and the proposed expedition might be entirely crippled by a small negligence on this point. The equipment of ships, and the selection of officers, would probably require much less time.

I have now to advert to the details of the instruments and the observations of the ingress and egress.

I trust

I trust that my friend Mr. Stone (First Assistant of the Royal Observatory), whose knowledge of the accounts of the transits of *Venus* in the last century probably exceeds that of any other astronomer, and whose personal experience in the observation of the late transit of *Mercury* is equal to that of any other, will be induced to attach to this notice his own remarks on the points to which the observer's attention ought specially to be called. We are undoubtingly of opinion that the telescopes ought to be nearly similar, with aperture perhaps of 4 to 5 inches, and used with power perhaps of 120 to 200. When there are several telescopes at one station, some variation among them may be actually advantageous. The protection of the eye from the sun's bright light, and the neutralization of the atmospheric dispersion, require distinct consideration. From my own experience in the observation of total eclipses, and from my view of *Mercury* in the late transit, I can state positively that much is gained in clearness of outline by the use of an achromatised prismatic coloured glass, adjustible by the observer. The atmospheric dispersion enters very seriously into the question of accurate observation. The very nature of a phenomenon, which is to exhibit in the highest degree the effects of parallax, implies that the planet must immerge or emerge near the highest or lowest part of the sun's limb, and that the sun must not be very high. No circumstances can be imagined in which atmospheric dispersion is more injurious. To meet this, coloured shades should be used, which, as examined on a solar spectrum, absorb the ends of the spectrum, leaving the green predominant. I think it probable also that advantage would be gained by attaching to the eye-piece a dispersive prism with its acute angle upwards; on this, however, I propose to make some experiments.

I trust that Mr. De La Rue will be induced to publish, with this paper, his proposal in detail, for the use of photography in the register of a transit of *Venus*.

In terminating this communication, I may perhaps remark that the expedition sent into the Pacific for the observation of the transit of *Venus* in 1769, has always been esteemed as one of the highest scientific glories of Britain in the last century; and I may be permitted to express my hope that it will be surpassed by the efforts which our country will make, with the same object, in the present century. And I close my paper with an extract from the appeal made by my illustrious predecessor, Dr. Halley, forty-five years before the earlier of the transits then in view. The personal reflection, though applicable with less force to myself, cannot entirely escape my thought:—

"Ac sane vellem diversis in locis ejusdem Phænomeni observationes à pluribus institui, tum ad majorem adstruendam ex consensu fidem, tum ne Nubium interventu frustraretur singularis Spectator, eo spectaculo quod nescio an denuo visuri sunt hujus et subsequentis sæculi Mortales: et à quo pendet Problematis nobilissimi et aliunde inaccessi solutio certa et adæquata. Curiosis igitur syderum scrutatoribus quibus, nobis vitâ functis, hæc observanda reservantur, iterum iterumque commendamus, ut, moniti hujus nostri memores, observationi peragendæ strenue totisque viribus incumbant; iisque fausta omnia exoptamus et vovemus, præprimis ne nubili cæli importunâ obscuritate exoptatissimo spectaculo priventur; utque tandem Orbium cælestium magnitudines intra arctiores limites coercitæ in eorum gloriam famamque sempiternam cedant."

Royal Observatory, Greenwich, 3 December 1868.

Remarks by Captain *Richards*, Hydrographer to the Admiralty.

I can have no hesitation in responding to the President's invitation to offer such observations as may occur to me on the important subject which has occupied the attention of the Society this evening, viz., the approaching transits of *Venus* over the sun's disc on 8th December 1874, and 6th December 1882, undoubtedly, in an astronomical point of view, the most important events of the present century.

The Astronomer Royal has, in his accustomed able, lucid, and instructive manner, placed before us the objects to be attained and the means necessary to secure them; it would be quite unnecessary and out of place on my part to take up your time in supplementing these remarks of his.

We can all quite understand and sympathise with the anxiety which the Astronomer Royal must feel as to the precise action which our Government, when the time comes, will take on a question of such vital importance to the astronomers of all nations; in ordinary affairs we do not think it necessary to look a-head so far as five years, but, as regards astronomical phenomena, concerning which there can be no uncertainty, and which do not recur but twice in a century, nothing must be left to chance which can possibly be provided for.

Mr. Airy and myself have been in communication on the subject for some months, and he has placed before the Admiralty, in the clearest manner, the arrangements which it will be necessary to make. Although I have no warrant for saying what precise steps will be taken; indeed it would be impossible for the Admiralty to decide themselves at the present time; yet I am justified in saying that such arrangements have been made as will insure that the whole question will be brought under their consideration at a sufficiently early period to enable the proper steps to be fully carried out; and it is impossible for any one who has followed the enlightened liberality which the Government of this country has ever adopted in such matters, to fear that Great Britain, which sent the expe-

dition to the Pacific in 1768 for a similar purpose, will be behind hand on this occasion, when the increase in astronomical knowledge and the improvement in astronomical instruments offer such a guarantee of increased success. In regard to the absolute determination of the longitudes of the stations named by the Astronomer Royal as necessary for the observations of 1874, I cannot conceive that any difficulties or obstacles will arise, and the only immediate measures which appear necessary to be taken are in the preparation of the instruments, which undoubtedly should not be long delayed.

In regard to the selection of stations on the Antarctic Continent for the observations of 1882, this is a more serious question, and one involving considerable difficulties, though not, I apprehend, of such magnitude as is conceived by many. It would, however, certainly be necessary to make a reconnoissance in the summer of 1881, in the first place, because we know of no accessible station for a ship either in the longitude of seven hours east, or in Victoria Land, which was noted by Sir James Ross, both of which places are mentioned by the Astronomer Royal as eligible, and in the second place, because the navigation in these regions is not open until some weeks after the time in which the transit will occur; therefore, it would be necessary for the astronomers to pass a winter there, or from January 1882 until January 1883; this would be done either on board ship, or by landing the party, perhaps, on Possession Island, Victoria Land, on which Sir James Ross landed in 1841, or on one of the small islands to the south of it. My own opinion, looking to the uncertainty of finding a wintering station for a ship, is that the latter course would be the most feasible, and there would be little doubt of the facility of reaching one or other of these islands with a suitable steam-vessel, making Tasmania or New Zealand the base of operations; doubtless a year passed in this region would be most profitably employed in adding to our knowledge of magnetism, and various other branches of physical science.

Remarks by Captain *Toynbee*.

The neighbourhood of Prince Edward's Islands, Crozet's, and Kerguelen's Islands, is, so far as my experience goes, subject to a great deal of thick weather, so that, although December may be a favourable season of the year, it would be well to have an observing station on each, in case of one or two being cloudy.

Remarks by Rear Admiral *Ommanney*.

Speaking from experiences in Arctic navigation, I consider that to insure obtaining a good position for the station of the ship on the Antarctic Continent from whence the observations are to be conducted, it is most desirable that a preliminary survey of the coast on the Antarctic Continent should be carried out before the year 1874, confining the survey more particularly to Victoria Sound, the locality for observing the transit.

Sir James Ross, in his memorable voyage, could do no more then than discover the coast line; the ships at his command were such that he could not hazard their safety by making any attempt to delineate the features of the coast, so that our knowledge of the Antarctic Continent remains where it was, of a most limited nature.

It is most important that those who will be engaged on this expedition shall find, by previous exploration, the position for the ship to winter at, as well as to initiate the commander and crew with some experience in the navigation of the Antarctic icy seas; without feeling our way, as it were, it would be hazarding this noble work to the risk of failure, were the expedition to proceed direct for making the transit observations with no more knowledge of the Antarctic regions than what we are now confined to.

We have not yet availed ourselves of steam-power for exploring these regions. I am of opinion that with a vessel properly constructed for the service, aided with steam-power, we could with confidence make a thorough search of the coast in Victoria Sound and the adjacent countries during the navigation season, making Van Dieman's Land the head-quarters of the expedition.

An expedition of this nature would be attended with many advantages for the interests of science, but most especially in training the officers for the service of the transit expedition when the time arrives; and knowing the nature of the position where the ship will have to take up her station, I know from experience how desirable it is that officers should have a special training for icy navigation.

I fully concur in all that has fallen from the Hydrographer of the Navy, and hope ere long to hear that operations are taking for sending out to explore the Antarctic seas.

Remarks by Staff Commander *J. E. Davis*.

Staff Commander J. E. Davis had accompanied Sir James Ross on his southern voyage, and had himself landed at one of the suggested positions of the Astronomer Royal, and he believed there would be no difficulty whatever in again effecting a landing at the same place, viz., on Possession Island, off the coast of South Victoria, in latitude 72°; he did not agree with Admiral Ommanney that a reconnoissance and further survey of that coast was desirable, as no sign of a harbour whatever could be discovered by Captain Ross

Ross along the coast, the whole of the land being faced with ice as perpendicular as the wall of a room; indeed, so anxious was Captain Ross to find a place in which he could have wintered in the ships, that he declared he "would willingly give his right arm to find one."

With respect to the suggested station in 7^h east longitude he would observe that, although we were not certain of the position and delineation of the land in the vicinity, yet as all the land that had been seen had been described as mountainous, it was natural to suppose that such was its general character, and if so, the mountains would be immediately between the observer and the sun; and when it was considered that the altitude of the last-named body at the times of ingress and egress, on either side of the pole, would only be between 4 and 5 degrees, the chances of seeing the sun at all would be extremely problematical, and with the station on the coast of South Victoria in latitude 72° in view, at which no such difficulty existed, he thought it would be desirable to give up the position in 7^h east longitude as untenable.

With regard to the period of the season at which the transit took place it was to be remembered that the 6th of December was so early that no ships had ever reached the Antarctic Circle by that date, and as it would be necessary to arrange the instruments, &c., preparatory to the observation, he might say that the ships ought to be on the spot at least a month before; this would be the 6th of November, a date altogether out of the question; and as the ships could not winter in the south, the party would necessarily have to be landed the year before; but with good huts he had no doubt they could pass the winter very comfortably: they would have a pleasant prospect before them, and plenty of penguins to live on.

In comparison with Kerguelen Island and the Crozet's, Captain Davis considered the chances of observing the transit—meteorologically speaking—to be greatly in favour of South Victoria.

Captain Davis stated that he was preparing a paper on the subject of Antarctic discovery and its connexion with the Transit of *Venus* in 1882, for the Royal Geographical Society, in which he should enter more fully into the subject than he could then do.

Remarks by *E. J. Stone.*

In observing a Transit of *Venus* for the determination of Solar Parallax, there are two phases of the phenomena presented at the ingress and egress which should be accurately observed,—

(1.) The real internal contacts.

(2.) The apparent internal contacts.

It will, perhaps, conduce to clearness of explanation if we confine our attention to the phenomena presented at the egress. Similar phenomena are presented, in a reverse order, at the ingress.

The apparent diameter of the sun is increased, and the apparent diameter of *Venus*, whilst on the sun's disk, is decreased from the same causes which produce the spurious disk of a star in the focus of a lens. When the true limb of *Venus* falls in a line with the true limb of the sun, the light is cut off, the spurious enlargement of the sun's disk and encroachment on that of *Venus* is destroyed at the point of contact, and, as a consequence, a dark ligament appears to connect the apparent limbs of the sun and *Venus*. This is the real internal contact.

The breadth of the connecting ligament rapidly increases, and, after some 18^s, the exact interval depending upon the circumstances of the transit and the success in first catching phase (1), the limbs of *Venus* and the sun will appear in contact.

This is the second phase for accurate observation, the apparent internal contact. The observation of this phase is rendered more difficult by the presence of the connecting ligament. The observation, however, is of great value on account of the probable loss of phase (1) at many of the stations through atmospheric disturbance.

It will be seen from this description that the passage from the real to the apparent internal contacts is gradual. The real contacts will appear to take place instantaneously to all the observers. The description of the formation or disappearance of the connecting ligament as "instantaneous" will convey no definite information respecting the phase really observed. The required information can only be conveyed by a drawing representing, as accurately as possible, the relative breadth of the ligament, as compared with the diameter of *Venus*, when last seen at the ingress and first seen at the egress. It may be mentioned that *Venus* will appear quite within the sun's disk at the disappearance and first appearance of the connecting ligament.

It should also be borne in mind that—if it were possible for any observer, favoured by exceptional atmospheric circumstances, to employ extraordinary optical power and thus catch a glimpse of the connecting ligament at ingress much later and at egress much earlier than the average phase, as marked by the breadth of the ligament, caught by the rest of the observers—then such abnormal observations, however interesting for other purposes, would be absolutely injurious for the accurate determination of solar parallax. It is, therefore, most desirable that all the observers should employ the same optical power,

which must not be fixed too high. A power of about 150 would, perhaps, meet all requirements. I would therefore suggest for consideration—

1. That real internal contacts be observed.
2. That apparent internal contacts be observed.
3. That a magnifying power of about 150 be employed.
4. That all the observations should be accompanied by drawings representing, as accurately as possible, the *relative breadth of the connecting ligament as compared with the diameter of Venus*, corresponding to the time of each observation. At the real internal contact, at ingress, the breadth of the ligament when last seen should be represented.
5. Of course full notes would be given of the circumstances under which the observations were made.

On the Observation of the Transits of *Venus* by means of Photography. By *Warren De La Rue*, Esq.

The Astronomer Royal having intimated to me his intention of communicating to the Society a Paper on the Transits of *Venus* of 1874 and 1882, and having invited me to make any suggestion which may have occurred to me on the means which photography offers for their observation, I venture to lay the following statement before the Society; premising, however, that I do not suggest that photographic observations should displace eye observations; on the contrary, I think that both eye and photographic observations ought to be made.

It will be recollected that in 1860 I made photographic observations of the phenomena of totality, and also of the different phases of the eclipse of the sun before and after that of centrality; the photographs of the totality and of partial phases were measured by means of a micrometer which I designed for that purpose,* and the results tabulated† and discussed.

From the discussion of the measurements of the partial phases, the angular position of the moon's centre in relation to the sun's centre and the distances of the sun and moon's centres were derived and compared with these elements calculated by Mr. Farley.‡

On reference to these results, it will be seen that the observed and calculated positions agree remarkably well,§ and that the deduced quantity for the nearest approach of the sun and moon's centres only differs by $\frac{4}{10}$ths of a second of arc from that calculated by Mr. Farley and 1·2 second from that calculated by Mr. Carrington.

The conditions which transits of *Venus* offer for the determination of the relative position of the sun and planet's centres are more advantageous than those presented by solar eclipses, inasmuch that it is far more easy to measure directly the distances between the centre of the disk of the sun and that of the image of the planet upon it, than it is to measure the distances between the peripheries of the sun and moon,‖ or the angular opening of the cusps¶ of the partially eclipsed sun. And in transits of *Venus* any error of observation would not affect the final result nearly so much as in solar eclipses; for example, in the transits of 1874 and 1882, an error of 1″ in the measurement would, for the maximum displacement, give an error of only 0″·185 in the deduced solar parallax.

Moreover, it may be observed that in photographic records it is by no means important to catch exactly the phases of contact, as two photographs obtained at a sufficient interval afford the means of calculating to a great degree of refinement and of tracing the path of the planet, which, for the conditions of the problem, may be considered to be a straight line between the two positions recorded.

Nor is it in any way essential, as it is with eye observations, that favourable conditions should exist for retarding the period of contact at one station and of accelerating it at another, because the chords representing the planet's path can be derived from photographic records, with as much accuracy under what would be considered unfavourable conditions as under favourable conditions for eye observations, for the length of the chords need not be directly considered in determining the nearest approach of the sun and planet's centres.

During the duration of the transit it would be possible in a clear state of the atmosphere to obtain a series of photographs at intervals of two or three minutes, and any or all of these would be available for comparison with the records obtained at all the stations selected.

The epoch of each photographic record is determinable with the utmost accuracy, 1st, because the time of exposure is not more than the $\frac{1}{50}$ or the $\frac{1}{100}$ of a second, and 2nd, because the instantaneous slide, as it flashes before the secondary lens, affords an audible signal** by striking against a stop a small fraction of second after it has shut off the image of the sun. This interval might be determined by experiment and taken into account.

In figures 1 and 2 is represented the solar disk of the dimensions of the photographs which would be given by the Kew Photoheliograph at the epochs of 1874 and 1882, under the same conditions of adjustment as existed during the eclipse observations of 1860; on this occasion $\frac{1}{1000}$th of an inch represented 0″·496 second of arc; ††the images are direct, as given by that instrument.

The

* This is described and represented in "Philosophical Transactions," 1862, pp. 373, 374.
† Ib. p. 383. ‡ Ib. p. 387, Table III. columns. § Ib. 862, p. 1393, Table IV.
‖ Ib. p. 383, Table I. ¶ Ib. p. 55, Table III. ** Ib. p. 364. †† Ib. 1862, p. 383, Table I.

The following data, part of which are derived from Mr. Hind's paper in the *Comptes Rendus* for 22nd July 1861, on the circumstances of the transits of *Venus* for 1874 and 1882, have been used in setting out the diagrams.

1874.

⊙ Semi-diameter (Le Verrier)	16′ 14″·98
⊙ Inclination towards East of Axis to a Meridian drawn through Sun's centre	12° 49′
Heliographic Latitude of Earth S.	22′
♀ Semi-diameter	31″·41
Ingress, Ext. Contact 49°·4 N. towards E.	
Egress, Ext. Contact 20° N. towards W.	
♀ Horizontal Parallax	32″·44
⊙ „ „ (by Encke)	8″·71

1882.

⊙ Semi-diameter (Le Verrier)	16′ 14″·64
⊙ Inclination towards East of Axis to a Meridian drawn through Sun's centre	13° 52′
Heliographic Latitude of Earth N.	12′
♀ Semi-diameter	31″·40
Ingress, Ext. Contact 145°·3 N. towards East.	
Egress „ „ 113°·9 N. towards West.	
♀ Horizontal Parallax	32″·43
⊙ „ „ (by Encke)	8″·71

In the Kew Photoheliograph the solar disk would, at the epoch of the transit of 1874, have a semi-diameter of 1965·8 thousandths of an inch (a diameter of nearly 4-inches), *Venus* a semi-diameter of 63·33 of these units, and the parallax of *Venus* referred to the sun would be represented by 47·85 of these units; the maximum possible displacement being 95·7 units, or nearly $\frac{1}{10}$th of an inch. In 1882 the sun's semi-diameter would be 1964·9 units; that of *Venus* 63·31 units; the parallax of *Venus* referred to the sun 47·82 units; the maximum possible displacement 95·6 units.

When the photographs have been secured, the measurements by means of the micrometer, which would have to be performed, consist in determinations of the sun's semi-diameter, in units of the arbitrary scale of thousandths of an inch, the angle of position of *a, b, d,* &c., and the distances *a c, b c, d c,* figs. 1 and 2; with these data the portion of the chord, *a b, b d,* &c., could be calculated. The measurements by means of the micrometer described in the *Phil. Trans.* 1862, pp. 373, 374, can be obtained to the $\frac{1}{2000}$ths of an inch (0″·25), and the position angles to one or two seconds of arc. For each photograph measurements made at different times are remarkably accordant; the greatest difference between the semi-diameter of the sun of the several eclipse pictures of 1860 was $\frac{2}{1000}$ths of an inch, or about 4″·5; but, on taking the mean of measurements of 45 photographs by two different methods, the difference was only $\frac{1·5}{1000}$, or about 0″·75. I am inclined to believe that the distance *a b, a c,* could be ascertained to within 1″, by means of a few pictures, and possibly to 0″·25, if a sufficient number of photographs were obtained.

Since 1860 means have been devised of ascertaining the optical distortion of the photographic pictures, and, in a paper* recently sent in to the Royal Society by myself, Mr. Balfour Stewart, and Mr. Loewy, this has been treated of; if this optical distortion had been ascertained for the photographs of the eclipse, 1860,† it is certain that even more accurate results would have been obtained, because a part of the small discrepancies in the measurements arose out of the circumstance of the centre of some of the pictures not being in the optical axis of the instrument. In the eclipse pictures the whole disk of the sun was not, however, visible, but in the transit pictures the whole disks of the sun and *Venus* would be seen, and the determination of the requisite data, consequently, far more accurate. By photographing a suitable scale of equal parts placed at about a mile or two miles from the heliograph, a picture would be obtained in which different equal portions of the scale would occupy different lengths; by measuring the divisions by means of the micrometer, the effect of optical distortion could be ascertained to a great nicety.

Such a scale of equal parts, if erected at a distance of two miles, would have to be about 110 feet long, in order that its image might be somewhat longer than that of the diameter of the sun picture. It could be made by fixing two horizontal rails of wood, one over the other, on vertical posts, so that their outer edges would be distant about three feet. On these horizontal rails plates of zinc, two feet wide and three feet long, would have to be fastened so as to leave an interval of exactly two feet between two adjacent plates. These plates could all be made of exactly the same width by clamping the whole series together and planing their edges in a planing machine; in fixing them on the horizontal rails, one of the plates could be used temporarily as a template to govern the interval between a plate previously screwed down and one about to be fixed. The horizontal bars would be strengthened here and there by cross bars of wood behind the plates, and by cross tension rods properly distributed. To facilitate the depiction of the scale, it should be

* Now being printed in the "Philosophical Transactions."

† It is not possible to do so now on account of the relative adjustment of the object glass and secondary lens having been disturbed after the observations had been made.

be placed on the summit of a low hill or, by preference, near the sea-shore, in order that the light of the sky might shine through the intervals between the plates.

The focus of the object-glass of the Kew Heliograph, for an object situated at a distance of two miles, would be about $\frac{8}{100}$ths of an inch longer than that for parallel rays; this elongation of the focus produces a little indistinctness in the pictures, but does not prevent measurements of them being made. Before finally fixing the position of the secondary (or enlarging) lens for sun pictures, sharply-defined pictures of the scale could be procured by adjusting the focus accurately for the scale of equal parts; subsequently other pictures of the scale could be procured after the focus had been adjusted and fixed for sun pictures. This double set of pictures would afford all the requisite data for ascertaining the correction for optical distortion; and, the exact distance of the scale of equal parts being known, for obtaining the value in arc for the divisions of the micrometer.

Fears have been expressed that the collodion, in drying, becomes distorted; experiments, however, in 1860-61 have demonstrated that the shrinkage is only in the direction of the thickness.* But, as in the case of the Solar Parallax no refinement of correction ought to be neglected, it would be quite easy to ascertain once more whether any distortion does take place, by taking photographs on glass plates on which lines about quarter of an inch distant had been previously etched, the collodion, which should be rendered purposely contaminated with particles in suspension, should be poured on the ruled sides to avoid parallax:—after all the operations of photography the film would have to be examined from the back, and the position of certain impurities with reference to the ruled lines noted whilst the collodion was wet, and after it had dried.

Lastly, on looking at the charts given in the May number of 1857, and in the June number of 1864, in Mr. Airy's valuable papers, it appears that, at all events, six stations could be selected favourable for photographic records; I would propose that six precisely similar instruments should be prepared and mounted equatorially, but without circles, or a driving clock, as these are quite unnecessary. The optical distortion of these instruments could be determined beforehand, and no further experiment would be necessary, as all the optical parts must be rigidly fixed; it would only be necessary to make a provision for the rotation of the telescope in a cradle on the declination axis for the object of adjusting the cross wires in a position of 45° to a meridian passing through the sun's centre; in other respects the mounting would be of the simplest kind.

No difficulties exist in photographing a transit of *Venus*; the operations are quite the same as those practised daily at the Kew Observatory; no strain on the nerves would occur, as in the anxiety consequent on the desire of rendering available every moment of the short duration of a solar eclipse. All the operations could be conducted with that calm so essential for such a problem as the determination of the Solar Parallax, and I feel confidence in recommending that timely steps should be taken to secure photographic records of the Transits of *Venus* in 1874 and 1882.

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* "Philosophical Transactions," 1862, p. 36.

Plate I.

Transit of Venus. 1874. Dec.r 8

Stations for observation of the Ingress of Venus

The Sun descending Venus entering on the Upper Limb

Ingress accelerated by Parallax

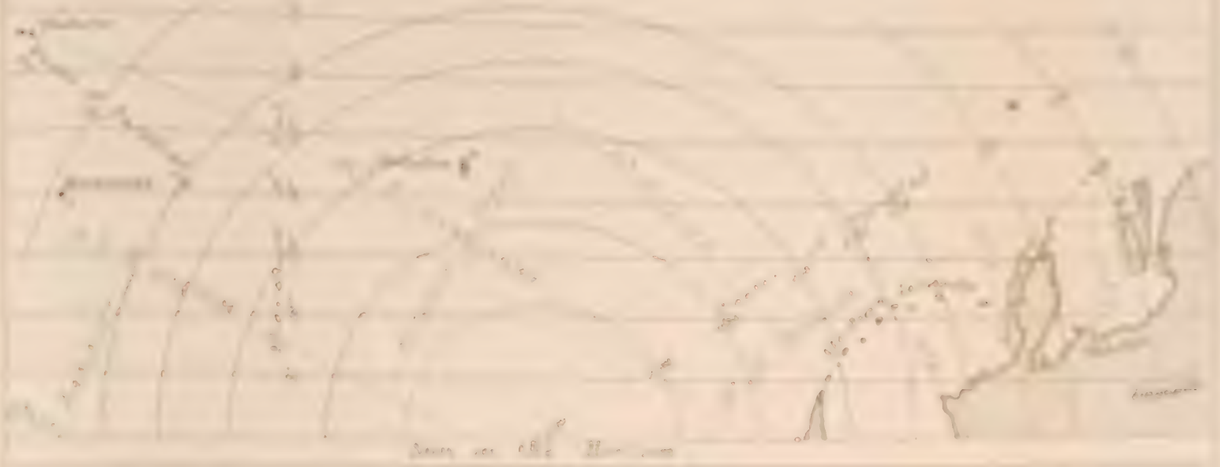

Plate II.

Transit of Venus. 1874. Dec.r 8

Stations for observation of the Egress of Venus

The Sun descending Venus leaving the Lower Limb

Egress accelerated by Parallax

Plate III.

Transit of Venus 1874 Dec.r 8

Stations for observation of the Ingress of Venus

The Sun ascending Venus entering on the Lower Limb

Ingress retarded by Parallax

Plate IV.

Transit of Venus 1874 Dec.r 8

Stations for observation of the Egress of Venus

The Sun ascending Venus leaving the Upper Limb

Egress retarded by Parallax

Plate V

Transit of Venus 1882 Dec^r 6.
Stations for observation of the Ingress of Venus.
The Sun descending. Venus entering on the Upper Limb.
Ingress accelerated by Parallax.

(Note. The Diagonals Southwestern line constitute the observation of Ingress.)

Plate VI

Transit of Venus 1882 Dec^r 6.
Stations for observation of the Egress of Venus.
The Sun descending. Venus leaving the Lower Limb. Egress accelerated by Parallax.

(Note. The Hindu Australian Diagonal and the Islands are also available for observation of Ingress.)

Plate VII

Transit of Venus 1882 Dec^r 6.
Stations for observation of the Ingress of Venus.
The Sun ascending. Venus entering on the Lower Limb.
Ingress retarded by Parallax.

Plate VIII

Transit of Venus 1882 Dec^r 6.
Stations for observation of the Egress of Venus.
The Sun ascending. Venus leaving the Upper Limb. Egress retarded by Parallax.

(Note. The Diagonal and the Islands are also available for observation of Ingress.)

— No. 7. —

The Astronomer Royal to the Secretary of the Admiralty.

[The Astronomer Royal invites the attention of the Lords Commissioners of the Admiralty to the Transits of Venus, 1874 and 1882; and solicits authority to proceed at once with the preparation of some of the most important instruments for the observation.]

(No. 7, of 1869.)
Pamphlet by Book Post.

Royal Observatory, Greenwich, S. E.,
Sir, 9 April 1869.

It appears from the calculations of astronomers that there will occur on 1874, December 8th, and 1882, December 6th, transits of the planet Venus over the sun's disc. This phenomenon (which has not presented itself since the year 1769) is peculiarly favourable for determination of the earth's distance from the sun, upon which depend all the dimensions of the solar system. On account of the importance and interest of this determination, the observations of the two Transits (1761 and 1769), the only ones which have been visible since astronomy became an accurate science, received the cordial support of the principal civilised nations of the world; and astronomers now look with hope for similar assistance in the observations of 1874 and 1882, to their Governments, especially to that of Britain, which from the wide distribution of its colonial posesssions may give more efficient aid than any other.

2. I transmit by this post a pamphlet communicated in the first instance to the Royal Astronomical Society, in which I have discussed with care the nature of the observations to be made, and the selection of stations: to which are appended notes by several well-known astronomers and navigators. Referring to page 10 of the pamphlet for some particulars, it appears that the number of foreign stations for which it may reasonably be expected that the British Government will provide is five or six. Among the various provisions to be made, as in the selection and instruction of observers, decision on the stations and on the modes of conveyance to them, temporary buildings, &c., there are some which are not immediately pressing; but that which (judging from all experience) is most pressing even at the present time, is the preparation of instruments; and I have the honour to ask the attention of the Lords Commissioners of the Admiralty to the following first list, and to solicit their Lordships' sanction for proceeding with the construction or purchase.

3. It appears that there must ultimately be provided,

Six transit instruments.

Five altazimuths (in addition to one disposable from the Royal Observatory).

Four clocks (in addition to two from the Royal Observatory).

Six barometers.

Six aneroids.

Eighteen thermometers.

Twelve chronometers (which could probably be furnished from the Admiralty stores).

Twelve or more telescopes the number and class are still under discussion; two detached telescopes of 3¾-inch aperture could be furnished from the Royal Observatory).

Small apparatus, of insignificant expense.

Six portable observatories (the plan of which is under consideration).

4. Of these, I would propose to their Lordships that the following be immediately prepared :—

	£.
Four clocks, with stands, packed for voyage, at 50 *l.* each, as estimated by Messrs. Dent - - -	200
Five altazimuths, with capping for pier, at 126 *l.* each, by Troughton and Simms - - - -	630
Six transit instruments, 36-inch focus, with piers, &c., by Troughton and Simms - - - -	470
£.	1,300

5. The amount of expense to be incurred in an enterprise so extensive as this, and requiring such severe attention to accuracy, is necessarily large ; but I have reason to think that, after every antecedent preparation has been completed, the total expense of outfit will not amount to the double of that which I have stated.

I have, &c.

The Secretary of the Admiralty. (signed) *G. B. Airy.*

— No. 8. —

The Hydrographer of the Admiralty to the Astronomer Royal.

Hydrographic Department, Admiralty,
21 May 1869.

My dear Sir,

I ENCLOSE you the whole of the papers respecting the transits, by which you will perceive the stage which the question has now reached. By the First Lord's Minute, 20th May, you will see what he requires from us, in order to bring the matter before the Treasury.

He appears to require one comprehensive paper to be drawn up out of the voluminous matter which has accumulated to such dimensions as I am sure would puzzle the Treasury, and it appears to me to be safer, and in all respects better, that you should draw it up. I will add anything which you may consider to be more in my line than yours.

I think I would mention decidedly the names and numbers of the places best for 1874, and not leave any alternative selection.

The expenses incident to the adoption of these stations, and the price of the instruments would, I take it, constitute the Estimate for the first transit; and it would be well to state distinctly what grant we want now at once.

In 1882 the measures which would probably be adopted seem all that is required, and I think it would be well to state here also definitely the places to be visited, and to make the Antarctic expedition a contingency to be dealt with hereafter.

If you will kindly send me your draft when prepared, and suggest any additions I can make, then we can both sign it, and I hope get it definitely settled, so that you may have no further delay.

I am, &c.
(signed) *George Henry Richards.*

The Astronomer Royal,
Royal Observatory, Greenwich.

— No. 9. —

The Astronomer Royal to the Secretary of the Admiralty.

Royal Observatory, Greenwich,
25 May 1869.

MEMORANDUM addressed to the Lords Commissioners of the Admiralty, by the Astronomer Royal, on the preparations to be made by the British Government for the Observation of the Transit of Venus, 1874, 8th December, with notes on the Observation of the Transit of 1882, 6th December.

1. For general explanation of the considerations which determine the selection of stations of observations, I refer to a pamphlet accompanying this communication, "On the Preparatory Arrangements, &c.," extracted from the Monthly Notices of the Royal Astronomical Society, vol. xxix., No. 2, and especially to the eight maps inserted in the pamphlet. *Pamphlet.*

2. It appears that after all allowance is made for the observations which may be expected from recognised foreign and colonial observatories, it will be necessary, for the proper observation of the transit of 1874, to organise observing expeditions to the following stations: *Transit of 1874.*

Woahoo.	Auckland.
Kerguelen's Island.	Alexandria.
Rodriguez.	

3. For each of these stations the outfit required will the same, namely:—

An observatory of three rooms.
A clock.
(H.) Two chronometers.
(H.) A barometer.
(H.) An aneroid.
(H.) Three thermometers.
A transit instrument.
An altazimuth.
A six-inch telescope (mounted equatoreally).
A four-inch telescope.

The instruments marked (H.) may probably be furnished from home stores, and will not require my further attention. Of the others, five sets must be provided, and this number which is less (by one) than the number mentioned in my letter, No. 7, of 9th April, is, in my judgment, the very minimum.

4. From the Royal Observatory, at Greenwich, the following can be supplied:—

Two clocks.
One altazimuth.
One six-inch telescope (mounted equatorially—the Sheepshank's equatorial).
Three four-inch telescopes.

5. The expense of the others, as well as I can judge, will be nearly as follows:—

	£.
1. Five observatories at 40 *l.* (estimated) - - - -	200
2. Three clocks, at 50 *l.* (Messrs. Dent) - - - - -	150
3. Four altazimuths, at 126 *l.* (Troughton and Simms) - -	504
4. Five transit instruments, at 80 *l.* (Troughton and Simms) -	400
5. Four six-inch telescopes, mounted equatorially, at 200 *l.* (estimated) - - - - - - - - - - -	800
6. Two four-inch telescopes, at 50 *l.* (estimated) - - -	100
TOTAL - - - £.	2,154

The estimates include piers or pier tops, such as cannot be worked at the place of erection. It will be remarked that this statement includes several particulars not contained in my letter of 9th April.

6. Of these several classes of instruments, it is very desirable that immediate authority should be given for proceeding with the following :—

		£.
No. 2.	Three clocks - - - - - -	150
„ 3.	Four altazimuths - - - - -	504
„ 4.	Five transits - - - - - -	400
„ 5.	Four six-inch telescopes - - - -	800
	TOTAL - - - £.	1,854

The delays of instrument makers are most distressing, and unless the constructions are authorised at once, it is possible that the instruments may not be finished in time. Moreover, with regard to the six-inch telescopes (a favourite class of instruments with British amateurs), it is possible that some may be procured from private owners (at this time there are two in the market on which I have begun to make inquiries), and I have, therefore, placed my estimate lower than the prices of the British and German artists. It is probable that negociations for such purposes will be more favourably conducted when the requisite funds are virtually at command.

2,200 *l.*

7. With allowance for contingencies, I think it desirable expenditure to the amount of 2,200 *l.* should be immediately sanctioned.

8. On the probable expense of conveyance, residence, and personal pay of the observers, assistance of natives, &c., I am unable to give an estimate, and I beg to refer for this to their Lordships' Hydrographer. I will only remark, that it is desirable that the observing party should be established, and in every respect ready for routine observation three months before the transit.

Transit of 1882.

9. On the plan of the observations in 1882, I submit that it will be best to defer decision until the experience of 1874 has been gained. It cannot be doubted that the equipment provided for 1874 will be abundantly sufficient for 1882, without further outfit expense.

— No. 10. —

Hydrographer of the Admiralty to the Secretary of the Admiralty.

Transit of Venus, 1874—Estimate of Total Cost.

Hydrographic Department, Admiralty, S. W.,
27 May 1869.

1. THERE are five stations at which it will be necessary to observe the transit, viz.:

Oahu (one of the Sandwich Isles), Kerguelen Island (in the Indian Ocean), Rodriguez (a dependency of Mauritius), Auckland, (New Zealand), and Alexandria.

2. At the first three of these stations it will be necessary to make observations for absolute longitude, extending perhaps, over a period of 12 months.

3. A party of three individuals would be required to proceed to each of the stations, and, in order to be on the spot three months previous to the eclipse, four of the parties should leave England on the 1st June 1874, and the fifth on the 1st August.

The

4. The expense of the parties is computed as under:

	£.
Oahu, Sandwich Islands.	
To carry the party with stores, instruments, observatory, &c.	500
Residence and subsistence for 12 months	500
Return passage	500
Personal pay	900
Hire of natives and contingencies	100
Kerguelen's Island.	
The party would proceed to the Cape by mail steamer, and thence on by a ship of war, and the expense for 12 months may be estimated at	2,000
Rodriguez.	
The party would be conveyed in a similar manner, and the expense would probably be about the same	2,000
Auckland.	
The expense may be estimated at	1,000
Alexandria.	
Estimated expense	750
Total Amount for Conveyance, Subsistence, Pay, &c. £.	8,250

This estimate is necessarily approximate, and is probably excessive, because it may be that a shorter period than has been contemplated will prove sufficient for longitude determination; and again it is probable that Her Majesty's ships may be conveniently made available for the conveyance of the astronomers, &c.

The Astronomer Royal's estimate for instruments, &c., and which is given in detail in the accompanying paper, must be considered as more accurate:

	£.
It amounts to	2,154
which, together with the before-mentioned sum	8,250
raises the Total Cost of observing the Transit of 8th December 1874 to £.	10,404

The portion of this sum which the Astronomer Royal considers should be placed at his disposal immediately, in order to prepare the instruments, and to provide for contingencies, is 2,200 *l.*

I quite agree with the Astronomer Royal, that the consideration of the expense necessary for 1882 may be advantageously deferred until we have the experience of 1874.

(signed) *George Henry Richards,*
Hydrographer.

— No. 11. —

Secretary of the Admiralty to the Secretary of the Treasury.

Sir, Admiralty, 3 June 1869.

I AM commanded by my Lords Commissioners of the Admiralty to request you will state to the Lords Commissioners of Her Majesty's Treasury, that the time has now arrived when it becomes necessary to commence the preliminary arrangements for observing the transit of Venus in the years 1874 as well as in 1882.

This event is looked forward to by the scientific world with great interest as affording an opportunity of rare occurrence of determining very important astronomical and cosmical questions; and my Lords make no doubt that it will be considered on the part of the Government as obligatory to undertake, as on previous similar occasions, the measures necessary for the acquisition of knowledge of so much importance to all civilized nations.

At the desire of my Lords, the Astronomer Royal and the Hydrographer of this Department have considered the places on the earth's surface at which the

transit may be best observed; and their reports, copies of which are appended hereto, will show what steps it will be necessary to take to carry out the proposed service. The total estimate of the expense, as far as calculations can be made at the present moment, amount, for the expenses of the necessary observations in 1874, to about 10,500*l.*: 2,200*l.* of this sum the Royal Astronomer is anxious should be placed immediately at his disposal for the preparation of instruments, &c., the great bulk of the sum probably not being required until the year of the first transit in 1874.

Before taking further steps in the matter, my Lords wish the question, as one of general national interest, to be considered by the Lords of the Treasury, and, if approved, it would appear desirable that the proposal should be brought under the notice of the House of Commons during the present S ession, so that an opportunity might be afforded of the sanction of Parliament being obtained before any part of the expense is incurred.

I am, &c.
(signed) *W. G. Romaine.*

The Secretary of the Treasury.

— No. 12. —

The Secretary of the Treasury to the Secretary of the Admiralty.

Sir, Treasury Chambers, 15 June 1869.

With reference to your letter of the 7th instant, respecting the necessary arrangements for observing the transit of Venus in 1874, I am directed by the Lords Commissioners of Her Majesty's Treasury to acquaint you that they fully concur with the Lords Commissioners of the Admiralty that it will be desirable that arrangements should be made for carrying out this important observation in the manner proposed by the Board of Admiralty, and they have no objection to offer to the expenditure of the sum of 10,500*l.*, as suggested in your letter.

I am, &c.
(signed) *William Law.*

The Secretary to the Admiralty.

TRANSITS OF VENUS (1874 AND 1882).

COPY of CORRESPONDENCE between the Treasury, the Admiralty, and the Astronomer Royal, respecting the Arrangements to be made for Observing the TRANSITS of VENUS, which will take place in the Years 1874 and 1882.

(*Mr. Childers.*)

Ordered, by The House of Commons, *to be Printed,*
9 *July* 1869.

[*Price* 1 *s.* 6 *d.*]

316.

Under 4 *oz.*